

EVALUATING THE EDP LEVEL OF SERVICE

INPUT

ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients'

needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technically advanced companies.

OFFICES

Headquarters

1943 Landings Drive
Mountain View, CA 94043
(415) 960-3990
Telex 171407

Dallas

Campbell Center II
8150 N. Central Expressway
Dallas, Texas 75206
(214) 691-8565

New York

Park 80 Plaza West-I
Saddle Brook, New Jersey 07662
(201) 368-9471

United Kingdom

INPUT, Ltd.
Airwork House (4th Floor)
35 Piccadilly
London, W.1.
England
01-439-4442
Telex 269776

AFFILIATES

Australia

Infocom Australia
Highland Centre, 7-9 Merriwa St
P.O. Box 1
Gordon N
(02) 498-4
Telex AA

Italy

PGP Siste
20127 M
Via Sope
Italy
Milan 28

Japan

Overseas
Shugetsu
No 12 -
3-Chom
Tokyo,
Japan
(03) 40
Telex J

Sweden

P.O. Persson Konsult AB

U/1982
LOS

atan 7
holm

AUTHOR

EVALUATING THE EDP LEVEL OF SERVICE

TITLE

U/1982
LOS

INPUT

Planning Services for Management

000101

U-LOS

EVALUATING THE EDP LEVEL
OF SERVICE

JUNE 1982



Digitized by the Internet Archive
in 2015

<https://archive.org/details/evaluatingeddlevunse>

EVALUATING THE EDP LEVEL OF SERVICE

CONTENTS

	<u>Page</u>
I MANAGEMENT SUMMARY	I
II METHODOLOGY	9
A. Approach	9
B. Respondent Profiles	10
III SATISFACTION WITH INFORMATION SYSTEMS LEVEL OF SERVICE	19
A. Areas of Satisfaction	19
B. Dissatisfaction	25
1. Information Systems Misperceptions of User Satisfaction Levels	26
2. Development Work Requests	28
3. Terminal Uptime	28
4. Response Time	35
IV INFORMATION SYSTEMS - USER RELATIONSHIPS	45
A. Personnel Movement	45
B. Costs and Chargeback	49
C. Outside Services Utilization	52
D. Measuring User Satisfaction	53
E. Information Systems-User "Contracts"	57
F. Information Systems-User Problems and Solutions	60
V CONCLUSIONS AND RECOMMENDATIONS	65
A. Conclusions	65
B. General Recommendations	67
C. User Service Agreements	68
1. Deciding Where Service Agreements Are Advisable	69
2. Factors Dependent On Information Systems	70
3. User-Related Factors	71
4. Service Agreement Contents	76
5. Developing User Service Agreements	82
6. Information Systems Resources Needed	84
APPENDIX A: INFORMATION SYSTEMS MANAGER QUESTIONNAIRE	85

	<u>Page</u>
APPENDIX B: KEY USER QUESTIONNAIRE	109
APPENDIX C: DETAILED RESPONDENT PROFILES	127
APPENDIX D: SAMPLE USER SATISFACTION SURVEY FORM	131
INDEX	135

EVALUATING THE EDP LEVEL OF SERVICE

EXHIBITS

		<u>Page</u>
I	-1 Information Systems Perception Versus Key User Satisfaction	2
	-2 Representative User Comments On Information Systems Service	3
	-3 Information Systems And Key User Management Agreement On Particular IS Services	4
	-4 Terminal Uptime Satisfaction: Differences Between Information Systems And User Perceptions	6
	-5 Terminal Response Time: Differences Between Information Systems And User Perceptions	7
II	-1 Age Of Key Systems	13
	-2 Type Of Enhancements To Key Systems	14
	-3 Software Techniques Used	16
III	-1 Rating Of General Information Systems Level Of Service	20
	-2 Two-Year Changes In Rating Of Levels Of Service In Specific Areas By Information Systems And Key Users	22
	-3 Satisfaction With User Involvement In The System Development Process	24
	-4 General Level Of Key User Satisfaction (Detail)	27
	-5 Development Work Request Process: Information Systems And User Satisfaction	29
	-6 Development Work Requests Process Satisfaction (Detail)	30
	-7 Terminal Uptime: Experience And Satisfaction (Summary)	31
	-8 Terminal Uptime Experience (Detail)	32
	-9 Contrast Between Information Systems And User Perceptions On Terminal Uptime And User Satisfaction	34
	-10 Computer System Versus Component Reliability (Hypothetical Example)	36
	-11 Response Time: Experience And Satisfaction (Summary)	38
	-12 Response Time Experience (Detail)	39
	-13 Contrast Between Information Systems And User Perceptions On Response Time And User Satisfaction	40
	-14 Response Time Needs (Schematic)	43

		<u>Page</u>
IV	-1 Information Systems Management's Perspective Of Information Systems-User Personnel Movement	47
	-2 Key User Department Manager's Perspective Of Information Systems-User Personnel Movement	48
	-3 Use Of Chargeback Systems	51
	-4 Extent To Which Information Systems Approval Is Needed For Outside Services	54
	-5 Importance Of Alternative Services	55
	-6 Status Of Measuring User Satisfaction By Information Systems	56
	-7 User Views On Measuring User Satisfaction	58
	-8 Status Of Information Systems-User Agreements	59
	-9 Information Systems Views On Information Systems-User Problems and Solutions	61
	-10 Key User Views On Information Systems-User Problems And Solutions	63
V	-1 Organizational And Information Systems Factors Affecting Advisability Of Introducing Service Agreements	72
	-2 Distinguishing Key Users From Other Users	74
	-3 User-Related Factors Affecting Advisability Of Introducing Service Agreements	77
	-4 Service Agreement Content: Terminal Downtime Checklist	79
	-5 Service Agreement Content: Response Time Checklist	80
	-6 Service Agreement Content: Program Development Request Checklist	81
	-7 Steps In Developing User Service Agreements	83
C	-1 Revenue Size Of Companies Interviewed	127
	-2 Employee Size Of Companies Interviewed	128
	-3 Number And Types Of Companies Interviewed	129

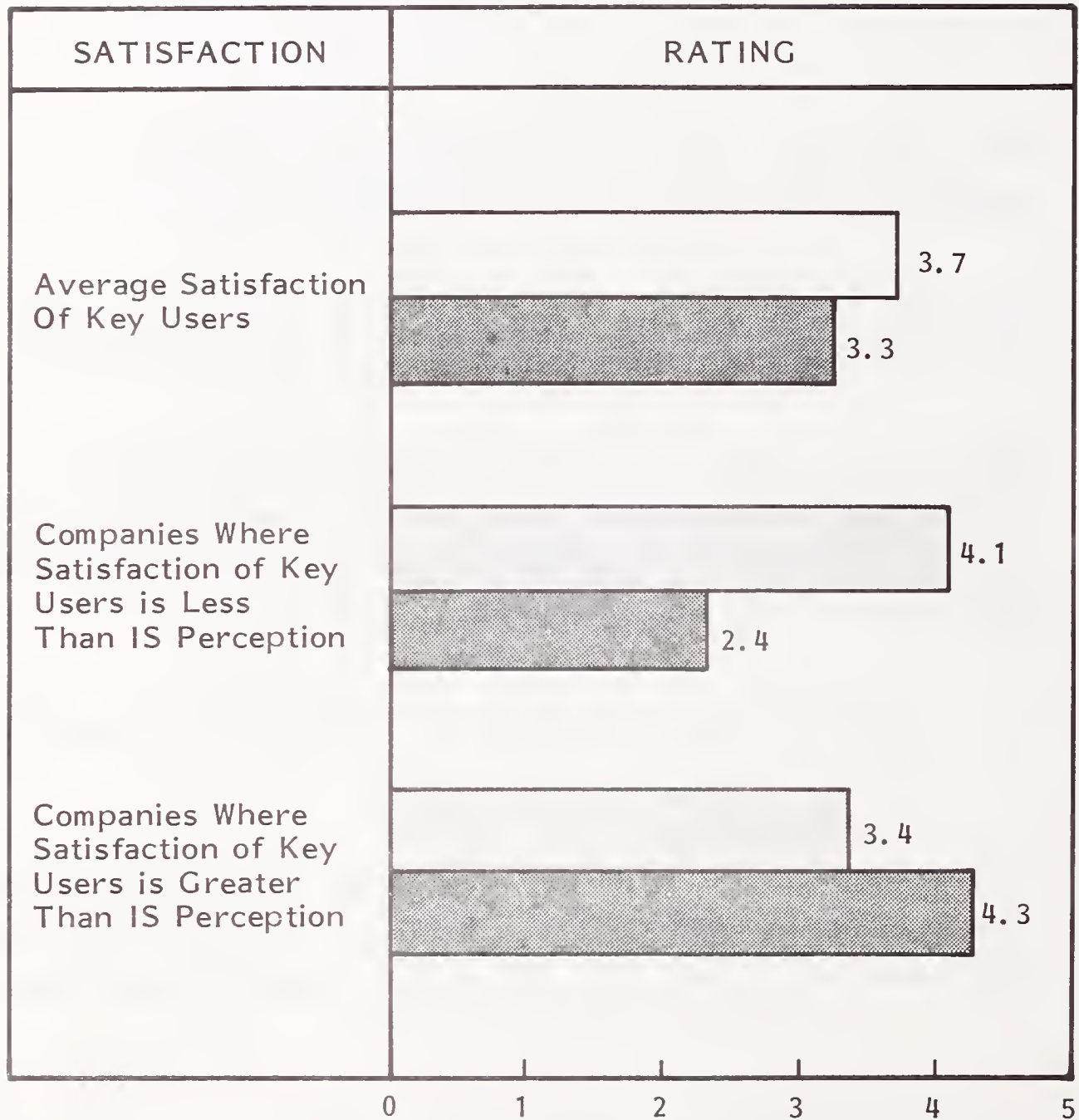
I MANAGEMENT SUMMARY

I MANAGEMENT SUMMARY

- Many Information Systems (IS) managers may be heading for a crisis in relations with their key users without even being aware of it.
- This report shows that in a number of critical areas IS management and key user management have strikingly different views on the same situation.
- While on the average, users are reasonably satisfied with the services they are receiving, and their ratings are in line with IS perceptions of user satisfaction, as shown in Exhibit I-1, over 80% of IS respondents rated user satisfaction either higher or lower than did user respondents.
 - IS management's overrating of user satisfaction is an especially critical issue.
- Low user satisfaction is illustrated by negative comments received from virtually all key users interviewed. Exhibit I-2 is a representative sampling of these comments, with the ratio of positive to negative comments preserved.
- In many particular areas of IS services, both IS management and the management of key users agree that IS service is satisfactory, as shown in Exhibit I-3.
- There are two critical areas, however, where there is a gulf between IS and key user perceptions:

EXHIBIT I-1

INFORMATION SYSTEMS PERCEPTION VERSUS KEY USER SATISFACTION



☐ IS management view of satisfaction of key users
☒ Key user satisfaction

RATING: 1 = LOW, 5 = HIGH

EXHIBIT I-2

REPRESENTATIVE USER COMMENTS ON INFORMATION SYSTEMS SERVICE

POSITIVE COMMENTS

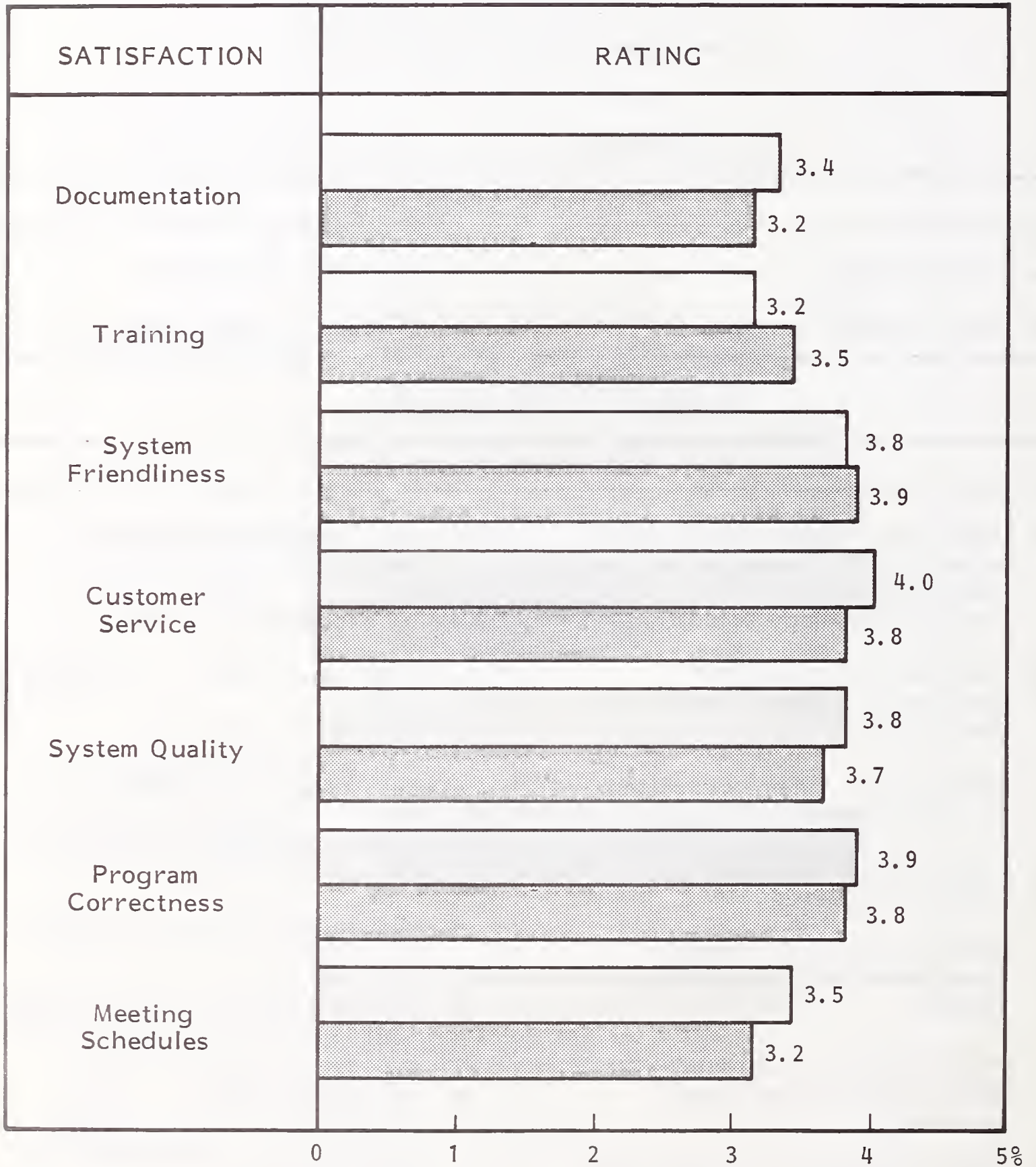
- | | |
|---|--|
| <ul style="list-style-type: none"> ● "No problems." ● "New systems are better." | <ul style="list-style-type: none"> ● "New MIS VP helping." ● "Excellent, very responsive." |
|---|--|

NEGATIVE COMMENTS

- | | |
|---|--|
| <ul style="list-style-type: none"> ● "MIS must realize the direction is for users to manage their own data processing. MIS not promoting technology to do this." ● "We use 90% of computer resources, but are considered low priority." ● "DP should be more committed to user needs." ● "User needs should be prioritized much better." ● "MIS should have a better understanding of corporate needs." ● "Eliminate the traditional autocratic EDP structure and operation." ● "Communication has to improve." ● "MIS dumps too much on user." | <ul style="list-style-type: none"> ● "MIS seems to random, no priorities." ● "EDP sometimes insensitive." ● "EDP must show it is a <u>service</u>." ● "EDP spread too thin." ● "MIS people vindictive, arbitrary." ● "Data processing can't keep up with our demands." ● "Getting approvals from MIS a real hassle." ● "IS not skilled in project management, not results oriented." ● "DP overworked." ● "No EDP-user communications, getting worse." ● "Users feel patronized." |
|---|--|

EXHIBIT I-3

INFORMATION SYSTEMS AND KEY USER MANAGEMENT AGREEMENT ON PARTICULAR IS SERVICES



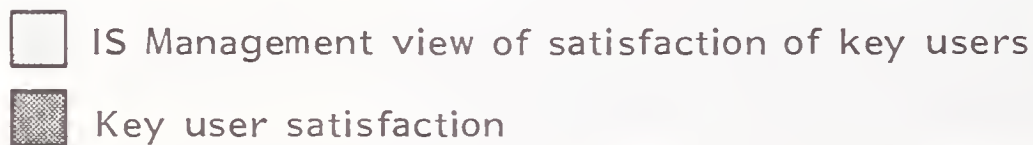
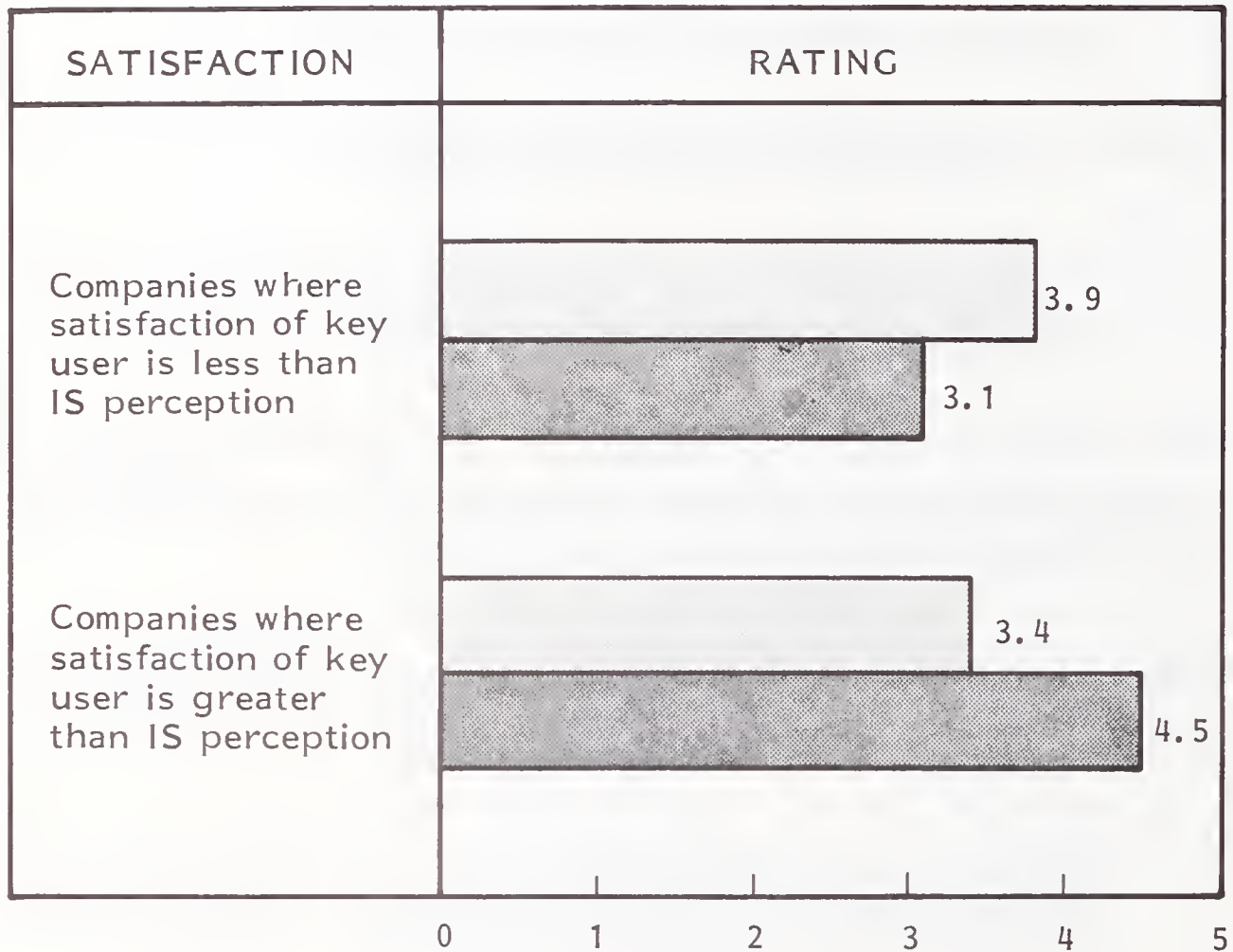
□ = IS Management Satisfaction
 ■ = Key Users Management Satisfaction

RATING: 1 = LOW, 5 = HIGH

- Terminal uptime (Exhibit I-4).
- Terminal response time (Exhibit I-5).
- These differences in perception can result in IS allocating either too many or too few resources to customer satisfaction.
 - The former is wasteful, the latter can be fatal.
- Another area of concern is the work request process:
 - IS is quite pleased with current arrangements (3.7 on a scale of 5) while key users are considerably less pleased (2.8).
- One of the most disturbing findings is that IS management feels that almost all user-IS problems originate with the user (i.e., users' lack understanding, do not get involved, or cannot perform).
- Users, on the other hand, see these problems as arising from bad IS-user communications or unsatisfactory IS service.
 - Obviously, some IS departments may have lost sight of their position as a service organization and forgotten that the customer is always right.
- Even more important, almost half of the key users believe that a solution for their problems will be to decentralize data processing operations.
- IS managers should seriously consider implementing service agreements with key users (sometimes called "user contracts").
 - Not many IS organizations have done so yet, but early reports are quite favorable.

EXHIBIT I-4

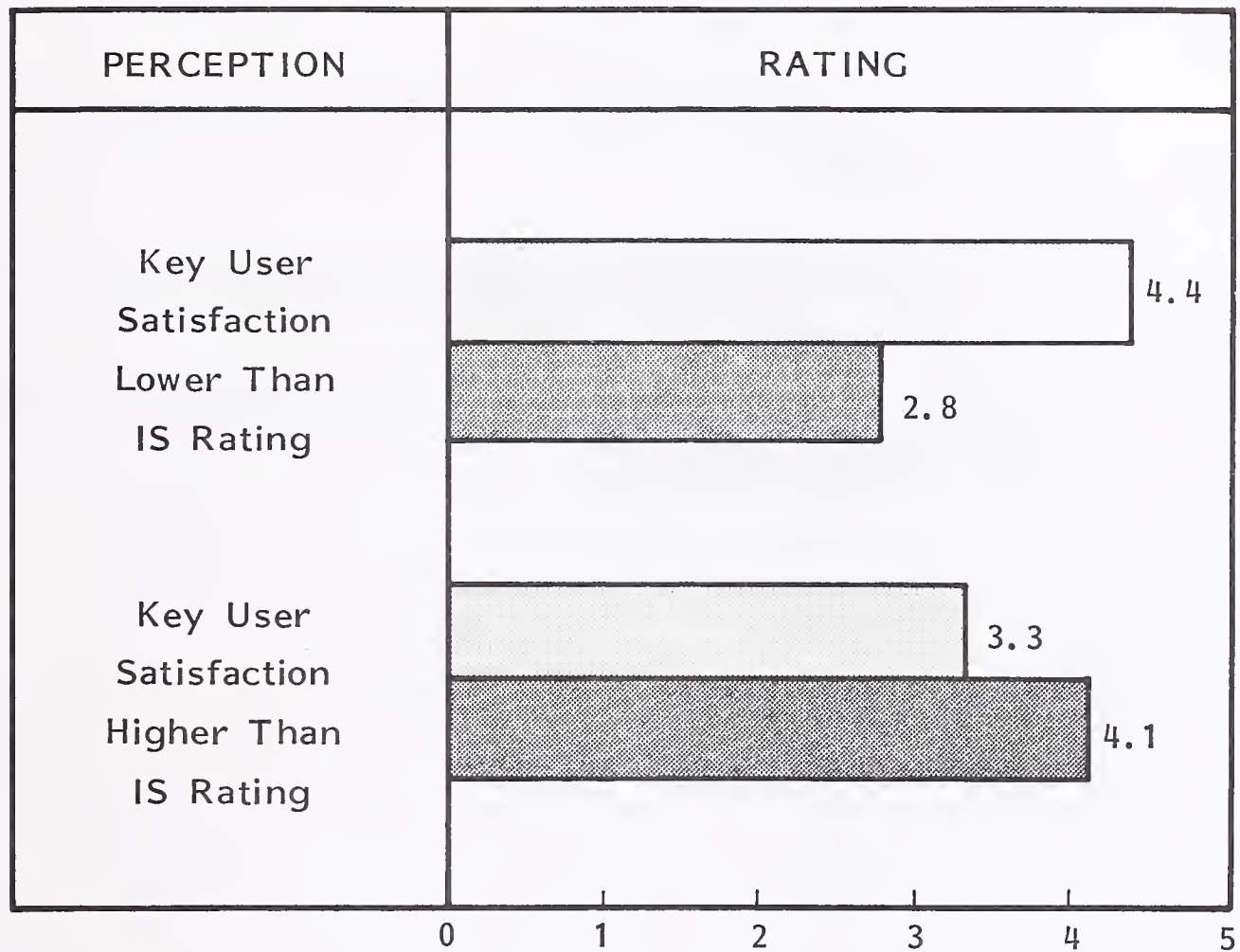
TERMINAL UPTIME SATISFACTION: DIFFERENCES BETWEEN INFORMATION SYSTEMS AND USER PERCEPTIONS



RATING: 1 = LOW, 5 = HIGH

EXHIBIT 1-5

TERMINAL RESPONSE TIME: DIFFERENCES BETWEEN INFORMATION SYSTEMS AND USER PERCEPTIONS



- ☐ Rating by IS Management
- ☒ Rating by Management of Key Users

RATING: 1 = LOW, 5 = HIGH

- Service agreements will have to be specifically tailored for the environment and needs of each organization.
- The report recommends a specific strategy to follow in implementing service agreements.
- Also of assistance would be:
 - Greater movement of personnel between IS and user departments, in both directions.
 - Modification or elimination of present chargeback systems.
 - A more formal process for measuring user satisfaction. (Sample forms are provided in Appendix D.)

II METHODOLOGY

II METHODOLOGY

A. APPROACH

- Without users there would be no IS department.
 - A few IS managers forget this and many others lose sight of it from time to time.
- Consequently, the level of service which IS delivers is a subject of constant importance. Recent developments have made this even more important, such as:
 - Technology changes (e.g., on-line systems, distributed processing, personal computers).
 - Increased dependence on computers.
 - Financial pressures.
- It was with these thoughts in mind that INPUT Information Systems Program (ISP) clients selected the topic, "Evaluating the EDP Level of Service," as one of those that would receive an in-depth examination in INPUT's 1982 report program.

- The approach taken has been to contrast the needs and expectations of IS managers and users. Two principal sources of information have been used for this study:
 - INPUT's consulting work over the last year where corporate EDP productivity and effectiveness issues have been addressed.
 - A special in-depth survey of IS management and key user management.
- The survey methodology was to first conduct an in-depth interview with key IS executives concerning their views on service performance, perceived user satisfaction, and future plans.
- Based upon the information obtained from the IS executive interview, a key user executive from the same firm was then interviewed. The questions asked mirrored those asked of the IS executive.
- Copies of the questionnaires used are in Appendices A and B.
- Interviews were conducted by telephone in February and March 1982.

B. RESPONDENT PROFILES

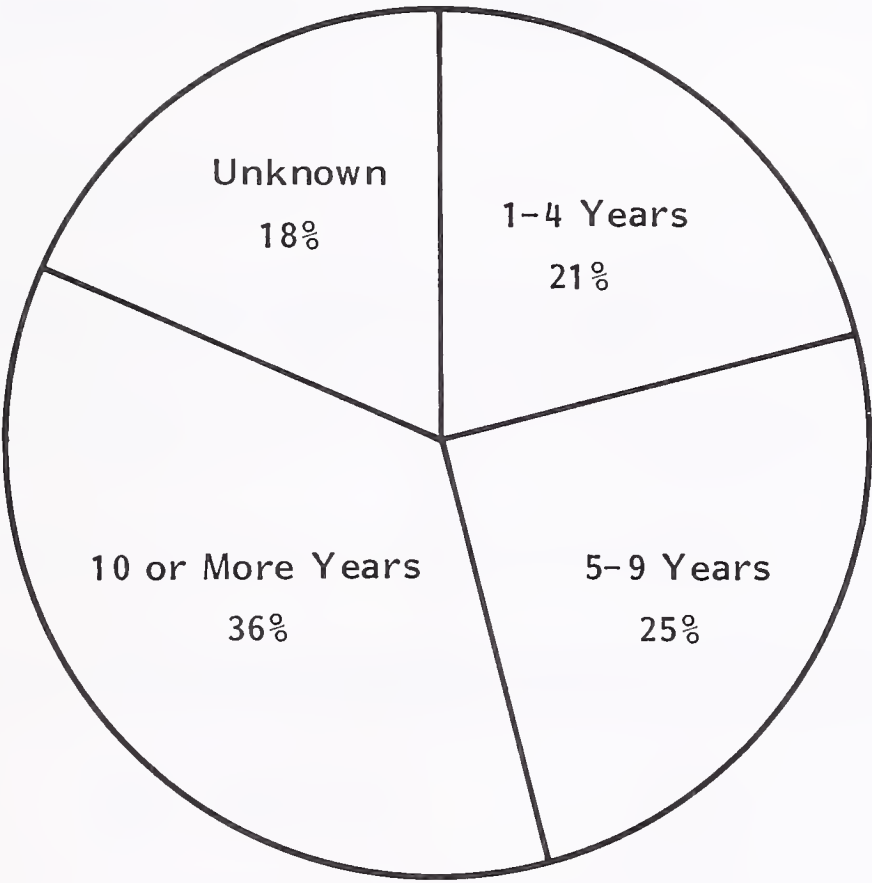
- The typical company interviewed had \$1 billion in sales in 1981 and employed between 6,000 and 20,000 employees.
 - Companies interviewed ranged in size from \$30 million to well over \$20 billion.
 - Appendix C, Exhibits C-1 and C-2, provide a detailed breakout of respondent company characteristics.

- Most of the respondent IS departments (84%) reported supporting over three-quarters of the company's business operations.
- Companies interviewed covered a wide range of commercial enterprises. Appendix C, Exhibit C-3, has a detailed breakout.
 - Similarly, the key user departments interviewed covered a wide range of functional activities.
 - The operations area (i.e., line as opposed to staff functions) was the one most commonly cited.
- On the average, the key department consumed 25%-35% of IS department machine resources. For 70% of companies interviewed, the key department consumed between 20% and 60% of IS machine resources. In most of the remainder the key departments were even more important.
- The typical IS department interviewed had the CPU processing power equivalent to a 3033. No company had less processing power than a 4331-Group 2 and several respondents had very large installations.
 - The median IS budget was \$6-10 million, with one quarter of the disclosed budgets being over \$20 million.
- On average, over half of the hardware resources of sampled companies were used by on-line systems.
 - About two-thirds of the on-line resources were used by user departments (range: 30-90%), and the remainder by IS itself.
 - The sizes of the on-line networks ranged widely, depending on the size of the company and the nature of its business.

- About half of programmer and analyst time is being devoted to new system development or major enhancements for the majority (60%) of companies interviewed.
 - The percentage devoted to new development and major enhancements ranges from a low of 30% in several companies to highs of 80% and 100% for two respondents.
 - The percentages are quite stable over time, being seen in most cases as unchanged, whether looking two years forward or two years back.
 - These percentages are consistent with those reported in the literature and with INPUT's experience.
- Not surprisingly, the key systems tend to be older, as shown in Exhibit II-1.
 - If one assumes that systems whose age is unknown are quite old, then half of the key systems are more than ten years old.
- The key systems are receiving continual enhancements, as shown in Exhibit II-2.
 - There is an element of chicken and egg in this:
 - Key application areas are often those operating in critical, dynamic environments and require the underlying data processing system to make similar changes.
 - However, there are also systems that never quite get off the ground for any number of reasons (user turnover, fuzzy or changing requirements, technical problems). These "problem children" become key systems due to the amount of time they consume.

EXHIBIT II-1

AGE OF KEY SYSTEMS



Percent of Systems

N = 28

EXHIBIT II-2

TYPE OF ENHANCEMENTS TO KEY SYSTEMS

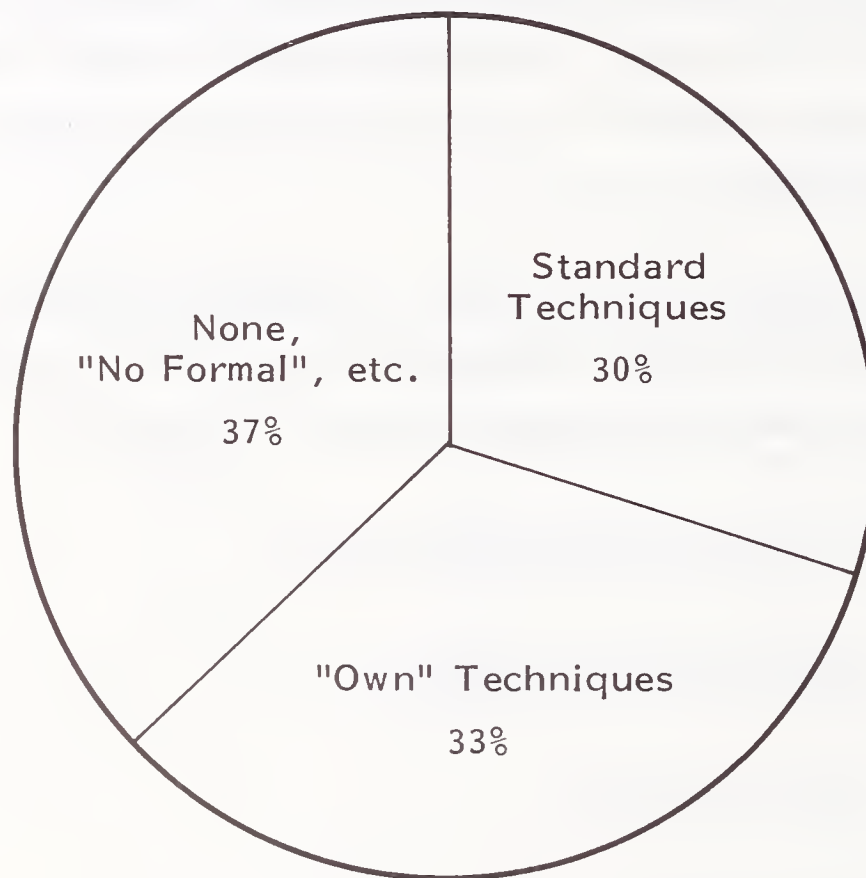
ENHANCEMENT	PERCENT OF SYSTEMS
Ongoing	71%
Other	29

N = 24

- The ongoing work is by no means trivial, several companies mentioned major changes being planned. Equally striking are the companies that did not report ongoing enhancements: almost three-quarters of them reported major changes being planned in the key system.
- Consequently, in spite of both the age and growth of the key systems, both ongoing and major changes are the rule and not the exception.
 - Although outside the scope of this study, it does seem apparent that, at least in some cases, a considerable amount of this modification would have been unnecessary if the requirements and design had been "right the first time".
- Companies are beginning to use specific techniques for software construction. Almost two-thirds of those interviewed used some type of special technique for managing the software process, as shown in Exhibit II-3.
 - Specific proprietary techniques include:
 - . Arthur Andersen Method I.
 - . Gane and Sarson.
 - . Pride/ASDM.
 - . Spectrum.
 - . Warnier-Orr.
 - . Yourdon.
 - These are described in INPUT's December 1980 report, Managing The System Development Process.

EXHIBIT II-3

SOFTWARE TECHNIQUES USED



Percent Companies Using

NOTE: Where a respondent used both standard techniques and its own techniques, the company was counted as using a standard technique.

N = 27

- Note, however, that half the respondents are using their "own" technique. This can cause difficulties on several levels:
 - It is unlikely that even the largest information systems organization can bring to bear the quality and quantity of resources in developing a methodology or technique that a specialist organization can.
 - Even where an adequate tool can be gotten off the ground, there is an ongoing need for modification and refinement which may receive a low priority. In addition, this kind of development is often the "baby" of a single key person; when that person leaves, the effort collapses.
 - At best, then, in-house techniques are uneven and sometime things.
 - At worst, they describe a hodge-podge of activities that give management reason to believe the situation is under control when, in fact, it is not.
- Whichever specific technique is being used, IS management is, generally speaking, quite pleased with it (a rating of 4.1 on a 5-point scale). Only two respondents gave ratings of 2 or below.

III SATISFACTION WITH INFORMATION SYSTEMS
LEVEL OF SERVICE

III SATISFACTION WITH INFORMATION SYSTEMS LEVEL OF SERVICE

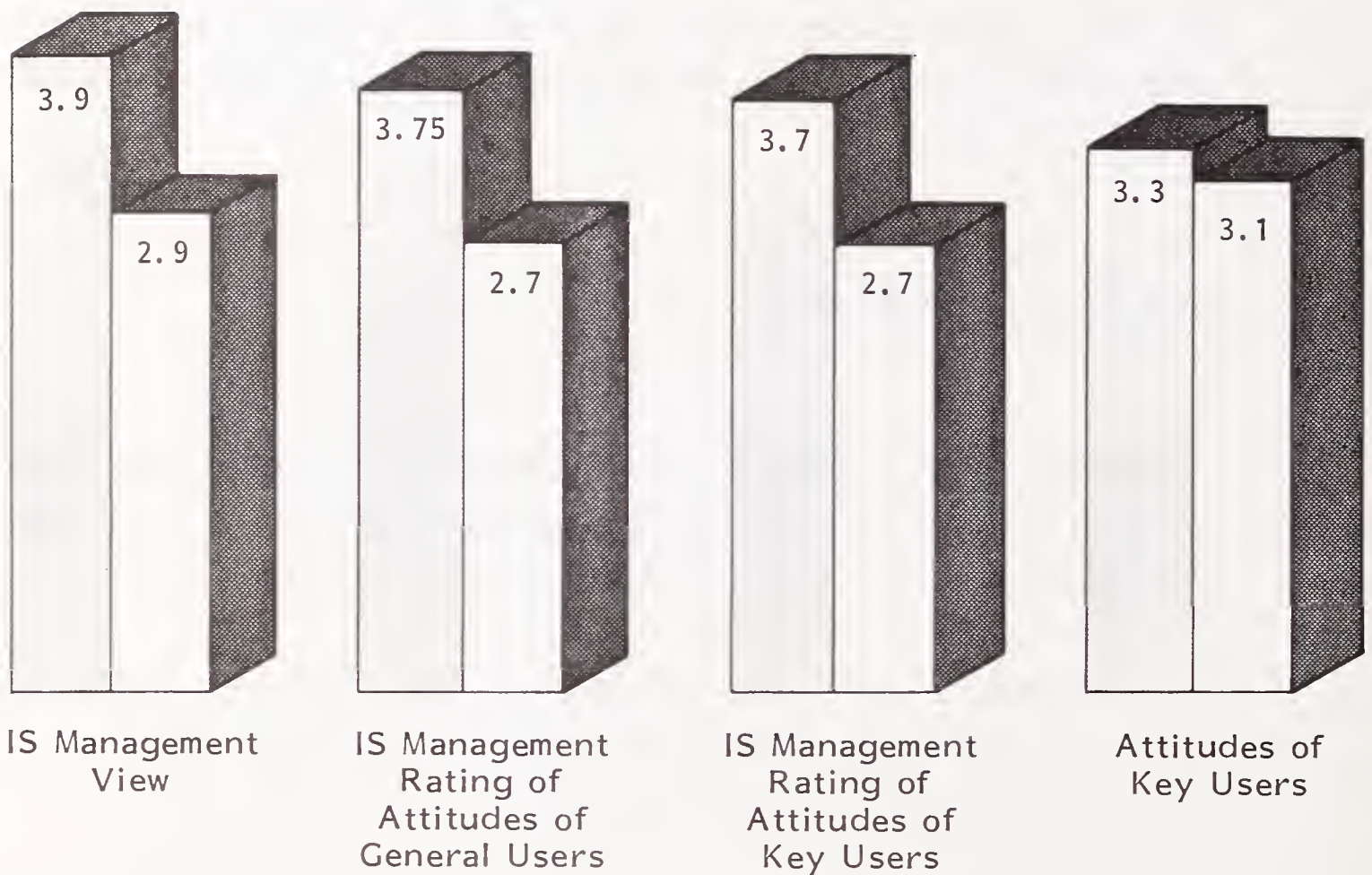
- This chapter will discuss and analyze areas of both satisfaction and dissatisfaction found in interviewing IS management and the management of key user areas.

A. AREAS OF SATISFACTION

- IS management is, in general, quite satisfied with the current levels of service being provided to its users and believes that service levels have improved appreciably in the last two years, as shown in Exhibit III-1.
 - IS management feels that users (key users as well as users in general) also believe that service levels have improved and that they are now about as satisfied as IS management is.
 - The key users interviewed show different satisfaction levels than those believed to be the case by IS management.
 - . Satisfaction levels are below both those of IS management and those IS management ascribes to users.
 - . Key user satisfaction levels have not changed much in the past two years.

EXHIBIT III-1

RATING OF GENERAL INFORMATION SYSTEMS LEVEL OF SERVICE



☐ = Current

☐ = Two Years Ago

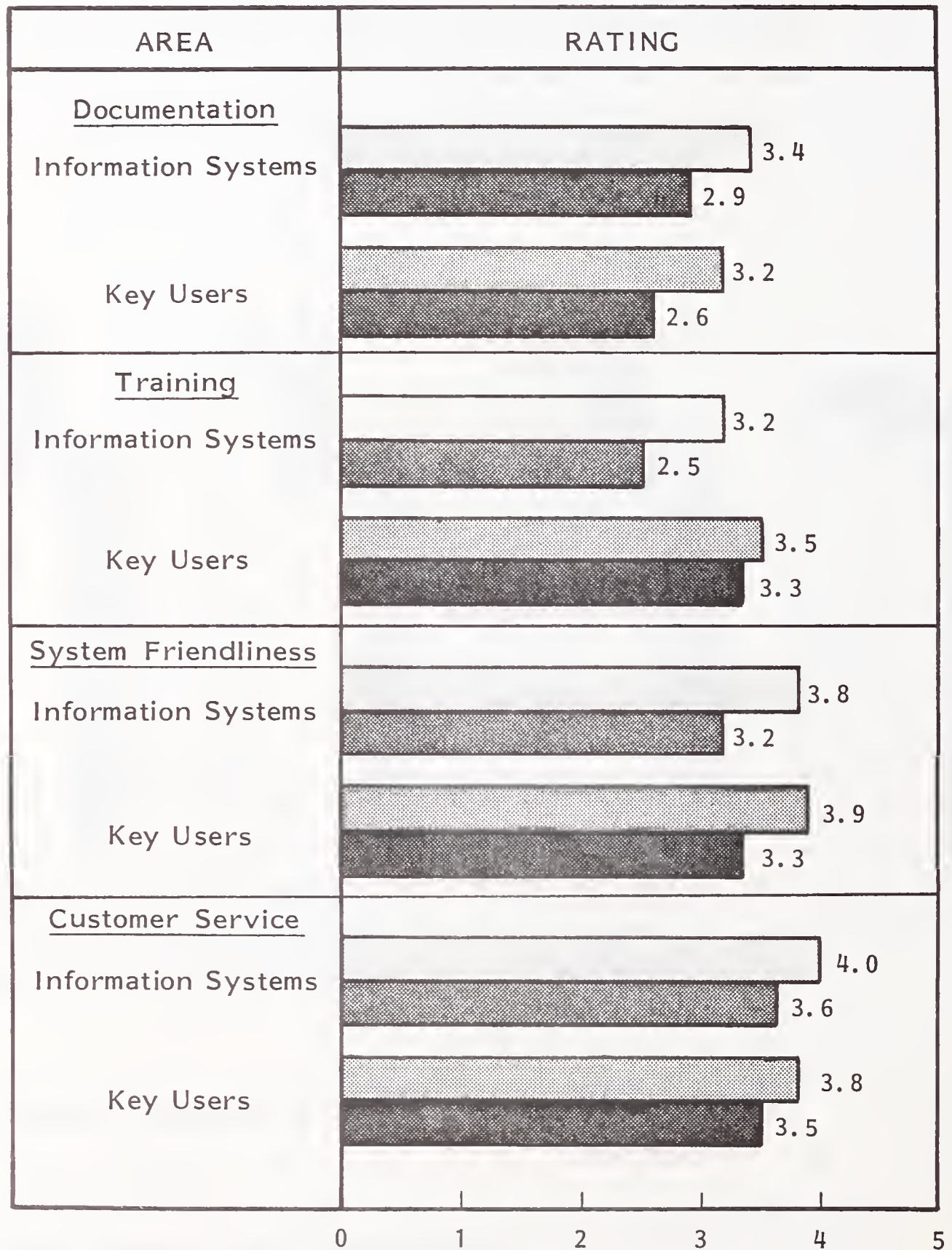
RATING: 1 = LOW, 5 = HIGH

N = 17

- The differences in satisfaction between IS perceptions and user ratings do not appear to be based on different views in specific areas.
 - Both IS management and key users were asked to rate the level of service in the following areas:
 - Documentation.
 - Training.
 - System friendliness.
 - Customer service.
 - System quality.
 - Program correctness.
 - Meeting schedules.
 - As shown in Exhibit III-2, the profiles were quite consistent:
 - IS saw improvement from the past to the present. (Interestingly, IS managers saw only half as much improvement on the average in these specific areas as they saw when asked the same question in general terms.)
 - User managers saw a similar improvement, but starting from a lower base.
- As shown in Exhibit III-3, IS and key users are also reasonably close together when rating key user satisfaction with user involvement in the system development process; i.e., the new system development process in general and design reviews in particular.

EXHIBIT III-2

TWO-YEAR CHANGES IN RATING OF LEVELS OF SERVICE IN SPECIFIC AREAS BY INFORMATION SYSTEMS AND KEY USERS



Information Systems
 □ = Current
 ■ = Two Years Ago

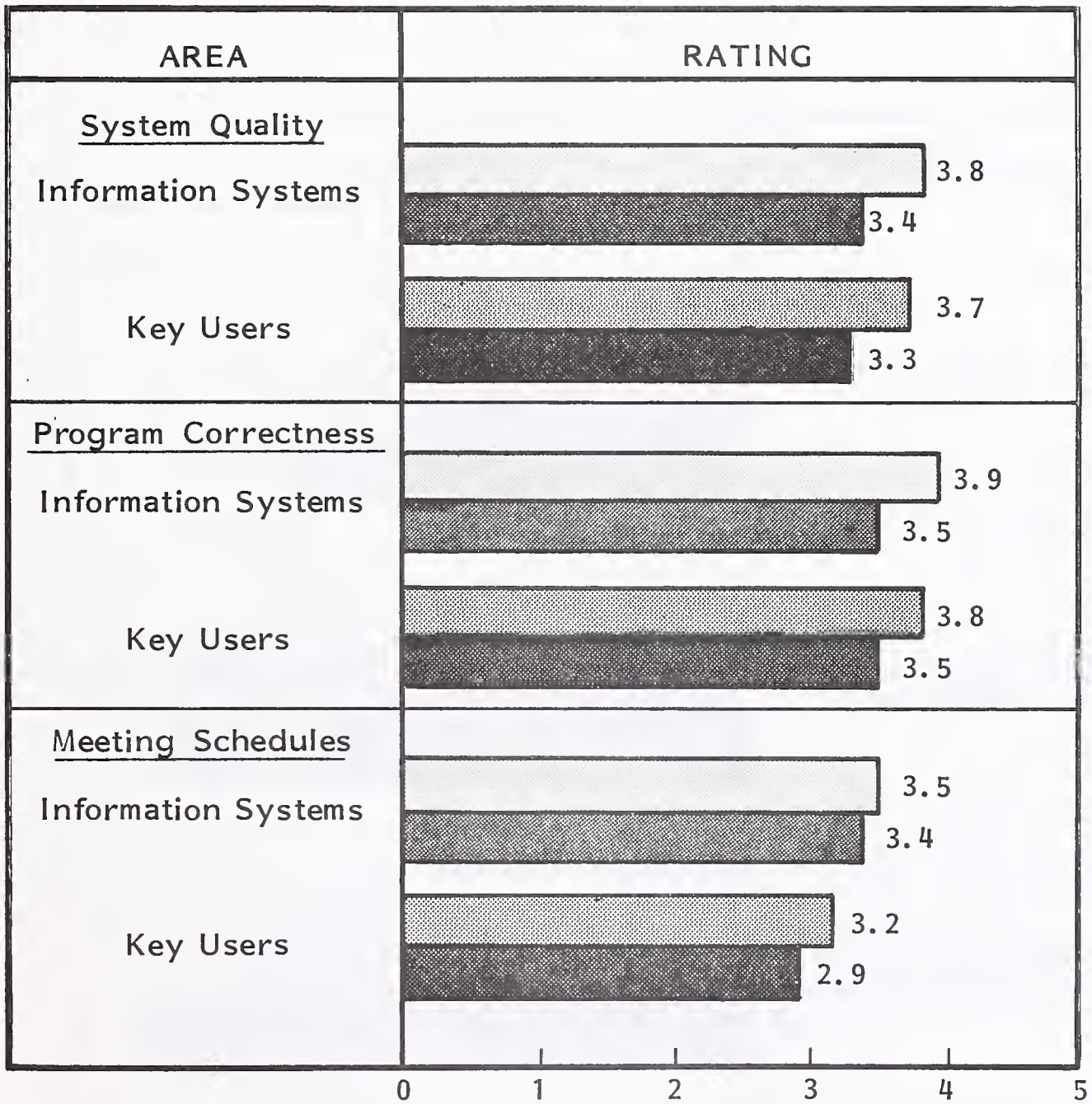
Key Users
 □ = Current
 ■ = Two Years Ago

RATING:
 1 = LOW
 5 = HIGH

(Continued)

EXHIBIT III-2 (Cont.)

TWO-YEAR CHANGES IN RATING OF LEVELS OF SERVICE IN SPECIFIC AREAS BY INFORMATION SYSTEMS AND KEY USERS



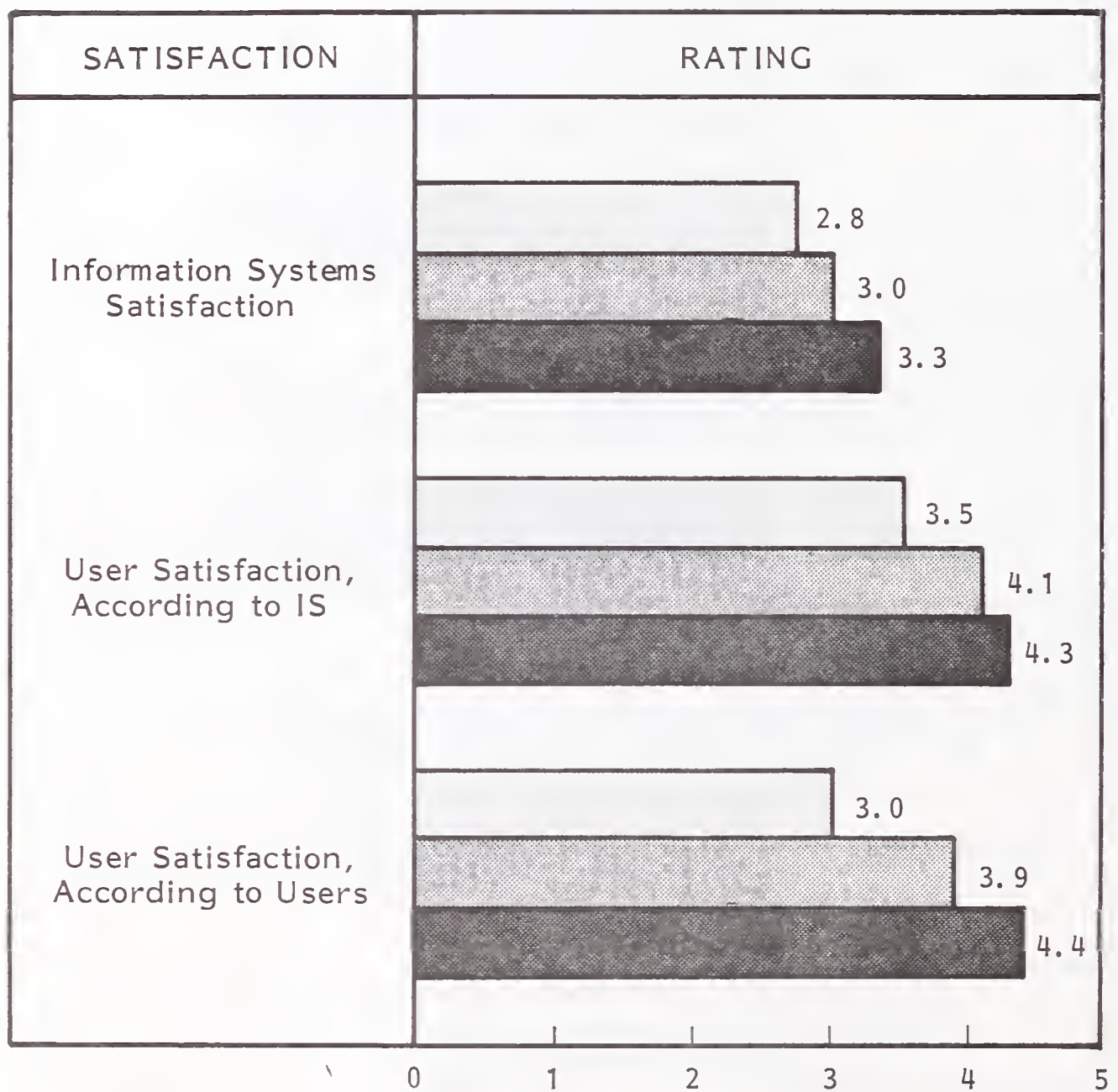
Information Systems
 □ = Current
 ■ = Two Years Ago

Key Users
 □ = Current
 ■ = Two Years Ago

RATING:
 1 = LOW
 5 = HIGH

EXHIBIT III-3

SATISFACTION WITH USER INVOLVEMENT IN THE SYSTEM DEVELOPMENT PROCESS



□ = 1980
 ▨ = 1982
 ■ = 1984

N: IS = 27, USER = 17

RATING: 1 = LOW, 5 = HIGH

- Users' satisfaction two years ago was somewhat less than IS believed to be the case, but views on the current and future situation are quite close.
- Interestingly, IS's own satisfaction with the development process is consistantly less than perceived user satisfaction.
 - . This appears to reflect IS management's knowledge of the great gap between current practice and potential advances.
- Looked at, then, from an average basis, two statements can be made:
 - The level of user satisfaction is reasonably high.
 - There is not a great deal of difference between the way that users rate their satisfaction and IS management's view of user satisfaction.

B. DISSATISFACTION

- There are, however, a number of areas that do not conform to the picture which, at first glance, seems to show happy users. The problem areas uncovered include:
 - IS misperceptions of user satisfaction levels.
 - Specific areas of user dissatisfaction:
 - . The work request process.
 - . Terminal uptime.
 - . Terminal response time.

I. INFORMATION SYSTEMS MISPERCEPTIONS OF USER SATISFACTION LEVELS

- The averaged reports of satisfaction become very different when individual pairs of responses are examined. Exhibit III-4 compares the individual ratings of user satisfaction.
 - Individual user's satisfaction was both higher and lower than IS management believed to be case.
 - However, the negative variation was almost twice as high as the positive variation.
 - Both types of misperception can cause problems.
- Where users are more satisfied than IS management believes, IS management may be devoting resources to problems already solved. Several situations in this survey reflected, for example, new IS management correcting bad situations; they were unaware of the magnitude of the progress that had been made.
- However, the opposite situation is much more dangerous: where IS management believes the situation is well in hand when, in fact, the key user is less happy than believed. Since these were key users surveyed, their declining satisfaction could cause significant problems for IS management.
- The specific areas discussed below are those where both IS perceptions were faulty and where key users showed dissatisfaction (sometimes dangerous dissatisfaction).

EXHIBIT III-4

GENERAL LEVEL OF KEY USER SATISFACTION (DETAIL)

FIRM	KEY USER SATISFACTION, AS RATED BY		DIFFERENCE BETWEEN IS AND USER SATISFACTION	
	IS	KEY USERS	USERS LOWER	USERS HIGHER
A	3.5	2.0	-1.5	-
B	3.5	3.5	-	-
C	4.5	2.5	-2.0	-
D	4.5	2.0	-2.5	-
E	3.0	1.0	-2.0	-
F	4.5	3.75	-0.7	-
G	3.0	2.0	-1.0	-
H	5.0	4.0	-1.0	-
I	4.0	4.0	-	-
J	2.5	4.0	-	+1.5
K	4.0	5.0	-	+1.0
L	3.0	4.0	-	+1.0
M	3.0	3.5	-	+0.5
N	3.5	2.0	-1.5	-
O	4.0	5.0	-	+1.0
P	4.0	4.0	-	-
Q	4.0	4.5	-	+0.5
Average	3.7	3.3	-1.7	+0.9
TOTAL	N/A	N/A	-12.2	+5.5

RATING: 1 = LOW, 5 = HIGH

2. DEVELOPMENT WORK REQUESTS

- IS is fairly satisfied with the process used to handle development work requests and believes key users to be almost as satisfied, as shown in Exhibit III-5.
 - Users are somewhat less satisfied than IS management believes.
- Again, when the averages are decomposed into individual paired responses, it becomes clear that there are some quite unhappy users whose unhappiness is not known, as shown in Exhibit III-6.
 - Twice as many users were less satisfied than IS believed.
 - Those users that were less satisfied than IS believed averaged a satisfaction rating of only 1.85 on a scale of 5, compared to IS belief that they averaged 3.45.
- Clearly, IS has grown used to a process that produces multiyear work backlogs, while many users have not.

3. TERMINAL UPTIME

- Terminal uptime is quite important to key users: the average importance of terminal uptime is rated at 4.9 on a scale of 5 by the respondents.
- Both IS and user management appear to have similar perceptions concerning terminal uptime and their satisfaction with it, as shown in Exhibit III-7.
- However, the averages conceal significant and, sometimes, critical differences. Exhibit III-8 expands the data in Exhibit III-7 so that detail for each respondent is shown.

EXHIBIT III-5

DEVELOPMENT WORK REQUEST PROCESS: INFORMATION SYSTEMS AND USER SATISFACTION

SATISFACTION	RATING
IS Satisfaction with Process	3.7
Key User Satisfaction:	
● As Perceived by IS	3.3
● As Reported by Key Users	2.8

RATING: 1 = LOW, 5 = HIGH

EXHIBIT III-6

DEVELOPMENT WORK REQUEST
PROCESS SATISFACTION (DETAIL)

FIRM	IS SATISFACTION	KEY USER SATISFACTION ACCORDING TO	
		IS	KEY USERS
A	4	4	3.5
B	2	2	1
C	3.5	3.5	1
D	3	3	1
E	3.5	3.5	1
F	4	4	1
G	5	4	3
H	4	3.5	5
I	4.5	3	4
J	4	3	2
K	2	2	4
L	3	3	5
M	4	4	1
N	4	3.5	5
O	4	4	4
P	4	3.5	3
Average Satisfaction	3.7	3.3	2.8

RATING: 1 = LOW, 5 = HIGH

NOTE: TO PRESERVE ANONYMITY THE ORDER OF RESPONSES IS NOT THE SAME IN THIS EXHIBIT AND IN EXHIBITS III-4, III-8, and III-12

N = 16

EXHIBIT III-7

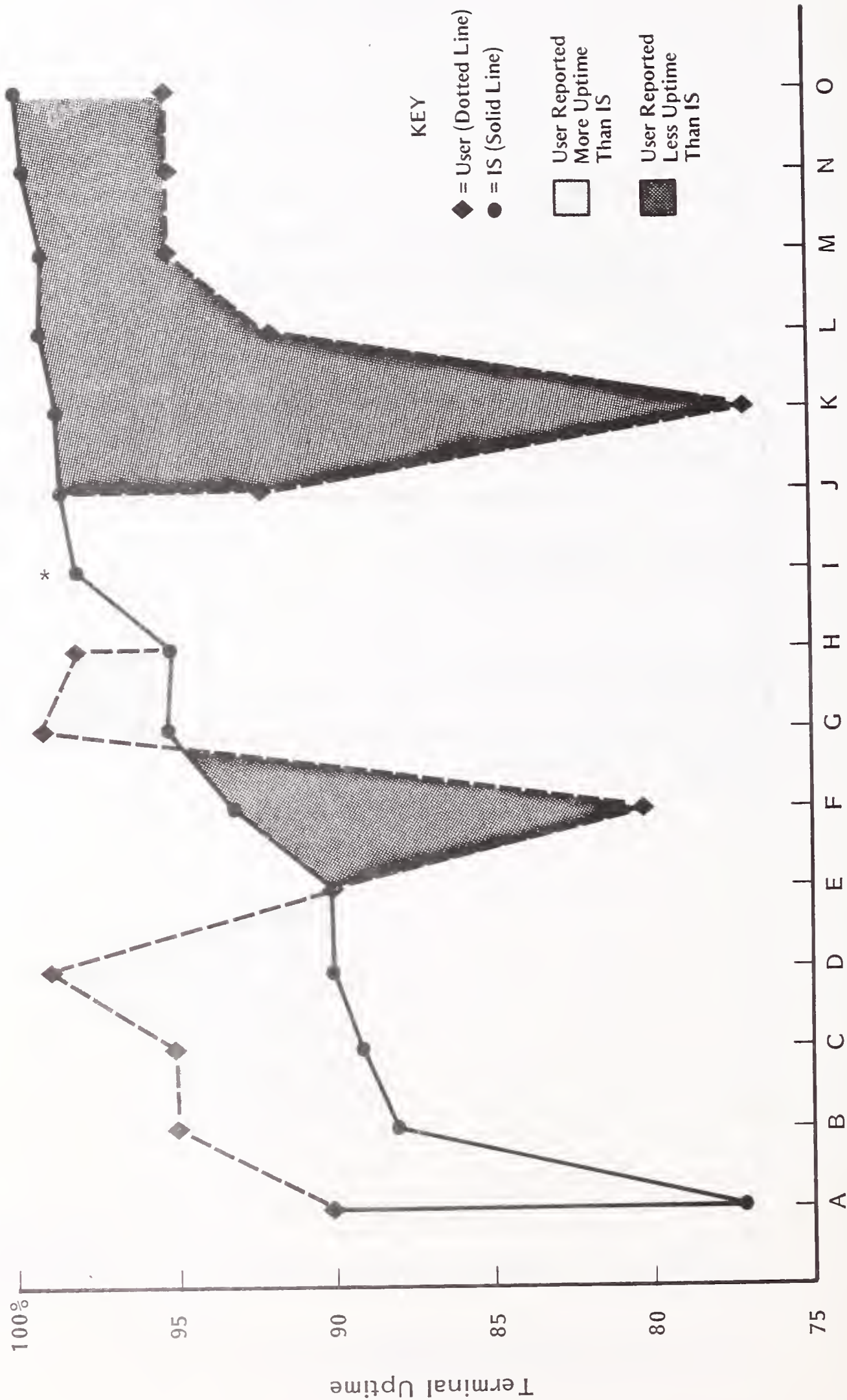
TERMINAL UPTIME:
EXPERIENCE AND SATISFACTION (SUMMARY)

EXPERIENCE AND SATISFACTION	IS MANAGEMENT	KEY USER MANAGEMENT
Average Terminal Uptime Percent, as Reported by:	94.0%	92.3%
Average User Satisfaction, as Rated by:	3.6	3.7

RATING: 1 = LOW, 5 = HIGH
N = 15

EXHIBIT III-8

TERMINAL UPTIME EXPERIENCE (DETAIL)



Respondent Pairs

*Unknown to user

- There are differences in the uptime percentage reported in virtually every case; six respondents believed uptime was better than IS and seven saw uptime as worse.
- There were similar, but not as striking, differences in perceptions of satisfaction.
- What is striking, though, is the differences in satisfaction between users who were receiving higher response time than IS believed (satisfaction 4.5 on a scale of 5) and those receiving worse response time (3.1 rating).
- Exhibit III-9 illustrates how tight this relationship is.
 - The two outlined boxes contain three times the number of responses as would occur randomly.
 - IS management will be condemned to work at cross-purposes with users if it has a different perception of their satisfaction than is in fact the case. Both alternatives are unsatisfactory:
 - Putting unnecessary, and often very costly, resources into a system when the user is satisfied.
 - Sitting by, while the user festers and corporate objectives are not met.
 - A large part of this misunderstanding is due to linked misperceptions concerning terminal uptime. Several factors are involved.
 - Different perceptions and definitions regarding uptime (e.g., users may only care about and be aware of uptime at critical parts of their own work cycle).
 - Different measurement methodologies (or, more usually, none).

EXHIBIT III-9

CONTRAST BETWEEN INFORMATION SYSTEMS AND USER PERCEPTIONS
ON TERMINAL UPTIME AND USER SATISFACTION

User Satisfaction with Terminal Uptime Compared to IS Perception of User Satisfaction	HIGHER	1	0	5
	SAME	2	1	1
	LOWER	4	0	0
		WORSE	SAME	BETTER
		User Rating of Terminal Uptime Compared to IS Perception		

RATING: 1 = LOW, 5 = HIGH

Example: The "5" in the Higher-Better cell means that five of the users who gave a higher terminal uptime percent than IS gave, were also more satisfied with terminal uptime than IS believed they were.

- Failure to document and publicize actual experiences.
 - Publishing only favorable statistics, while ignoring the unfavorable ones.
- A logically difficult and unsettling finding is to compare the IS management terminal uptime percentage (94%) with that given to a similar question concerning the availability of the "computer system generally during prime shift." This percentage was 95.8%.
 - Logically, these percentages are far too close together, since a terminal will usually be down when the computer system is down, but will also be down on other occasions as well. Exhibit III-10 illustrates this relationship.
 - This issue of measuring terminal uptime is a difficult one (see INPUT's report, Performance Measurement and Capacity Planning, June 1981). However, the data above show that it must be addressed.

4. RESPONSE TIME

- Response time issues were explored in a similar fashion to terminal uptime:
 - Average key system response time as reported by IS management.
 - Average key system response time as reported by user management of the key system.
 - User satisfaction for the key system's response time:
 - As reported by user management of the key system.
 - As reported by IS management.

EXHIBIT III-10

COMPUTER SYSTEM VERSUS COMPONENT RELIABILITY (HYPOTHETICAL EXAMPLE)

COMPONENT	UP-TIME (PERCENT) *
HARDWARE	
INDIVIDUAL TERMINAL	99%
MODEMS	99
LINES	99
MULTIPLEXOR	99
CONTROLLER	99
DASD	99
CHANNEL	99
CPU	99
TOTAL HARDWARE	92%
SOFTWARE	
DBMS	98%
TP CONTROL PROGRAM	99
OPERATING SYSTEM	99
APPLICATION SOFTWARE	99
TOTAL SOFTWARE	95%
TOTAL PROCESSING SYSTEM	87%

* FIGURES FOR ILLUSTRATION ONLY.

SOURCE: INPUT REPORT, "PERFORMANCE MEASUREMENT AND CAPACITY PLANNING"
JUNE, 1981

- Taking the unweighted average of responses, users saw response time as considerably worse than did IS management, as shown in Exhibit III-11. (Eliminating one very high user figure brings the user average down from 6.1 seconds to 4.1 seconds; i.e., not too dissimilar to IS management's average of 3.6.)
 - This makes the similar satisfaction averages understandable.
- However, when the figures are disaggregated, as shown in Exhibit III-12, quite a different picture emerges:
 - User perception of response times was generally different from IS management (column B), often strikingly so (e.g., response #8).
 - As with system uptime, where users believed response time higher than did IS management, users had much higher satisfaction than where user response time was worse than IS believed.
 - A striking finding is that in no case was IS management's assessment of user satisfaction the same as the user's.
 - In most cases user satisfaction was lower than IS management believed.
- The correlation of IS misperception of response time with misperception of user satisfaction, as shown in Exhibit III-13, was as strong as for uptime. That is:
 - Where the user department's assessment of response time was worse than the IS department believed, user satisfaction was also lower than the IS department believed.

EXHIBIT III-11

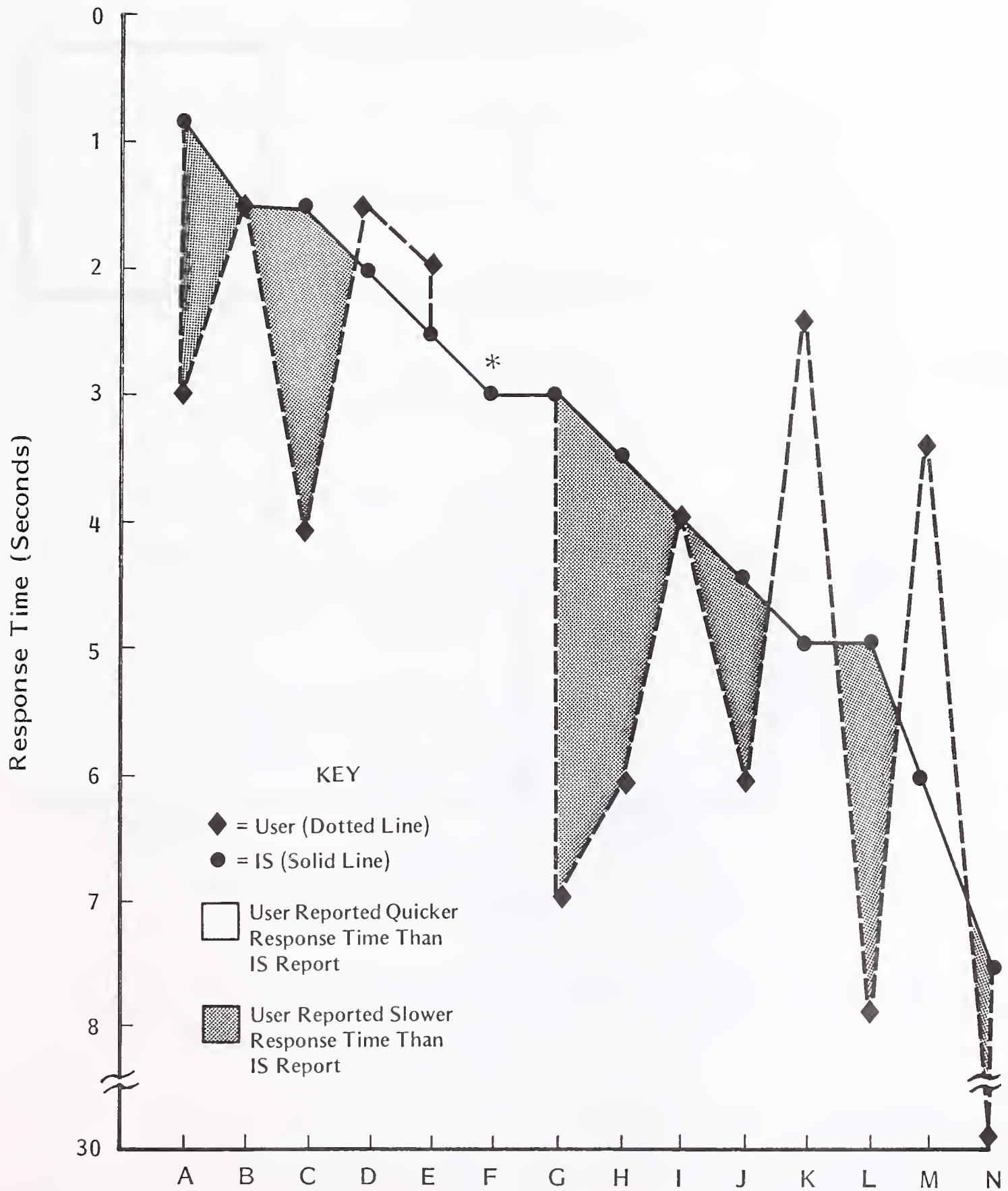
RESPONSE TIME:
EXPERIENCE AND SATISFACTION (SUMMARY)

EXPERIENCE AND SATISFACTION	IS MANAGEMENT	KEY USER MANAGEMENT
Average Response Time (in seconds) as Reported by:	3.6	6.1
User Satisfaction as Rated by:	3.9	3.6

RATING: 1 = LOW, 5 = HIGH
N = 14

EXHIBIT III-12

RESPONSE TIME EXPERIENCE (DETAIL)



*Response Time Unknown by User

Paired Respondents

EXHIBIT III-13

CONTRAST BETWEEN INFORMATION SYSTEMS AND USER PERCEPTIONS ON RESPONSE TIME AND USER SATISFACTION

User Response Time Satisfaction Compared to IS Perception of User Satisfaction	HIGHER	0	1	3
	SAME	0	0	0
	LOWER	6	1	2
		<u>WORSE</u>	<u>SAME</u>	<u>BETTER</u>
		User Rating of Response Time Compared to IS Rating		

RATING: 1 = LOW, 5 = HIGH

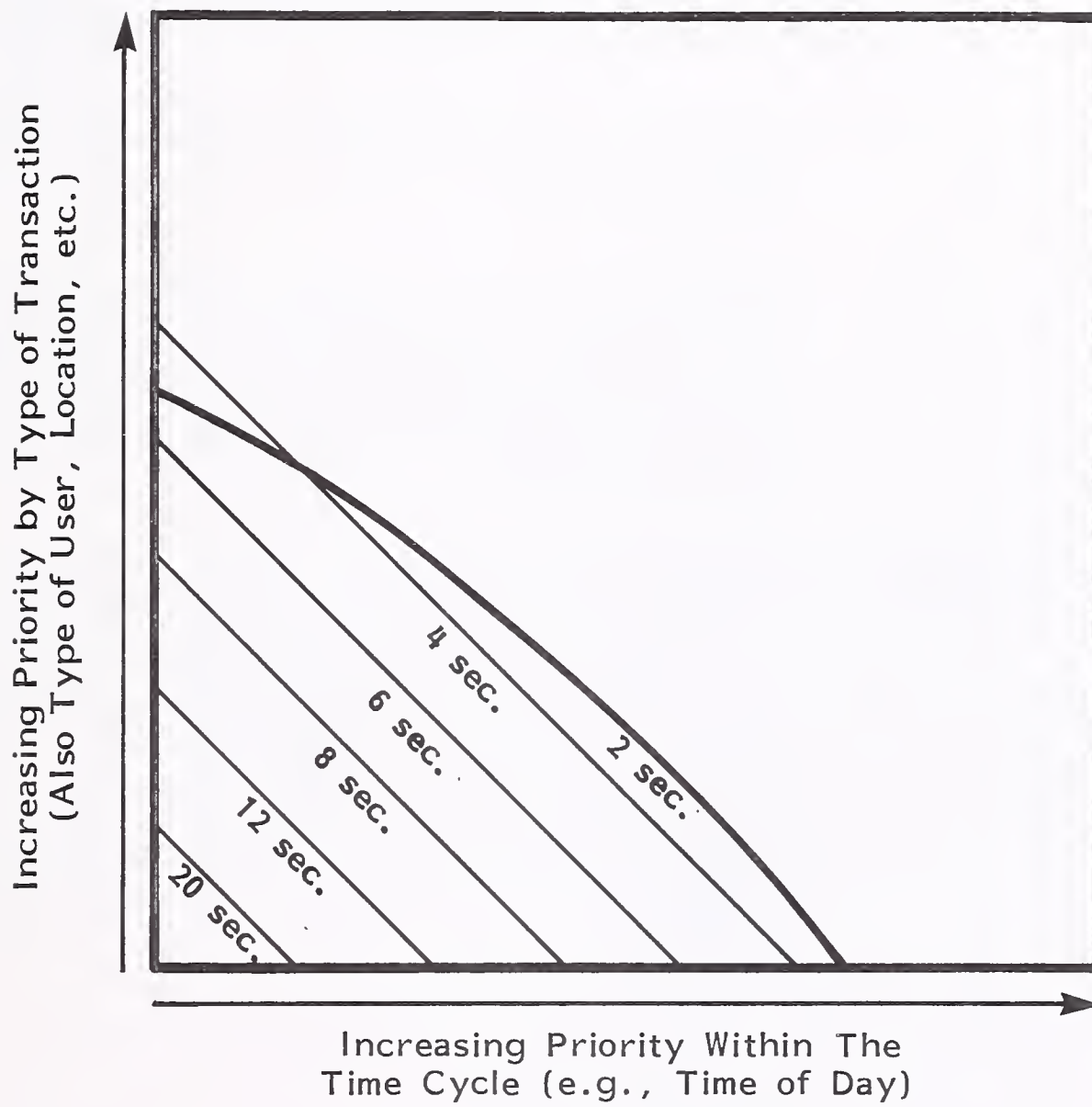
N = 13

- Unfortunately for the IS department, even where the user department believed response time to be better than did IS management, there was a tendency to be less satisfied than the IS department believed.
 - . As most IS managers have discovered, there are more ways to lose than win concerning response time.
- Several questions present themselves concerning the response time issue:
 - Are users and IS management talking about the same thing?
 - How good are either side's measurements?
 - Are the response time numbers real, or are they just "satisfaction" expressed in a different manner?
- To deal with these questions in reverse order:
 - It is possible that there could be a steady bias concerning satisfaction by users and IS management.
 - . Satisfaction is to some extent a relative measure. Response time is, or should be, an absolute. No matter who is measuring it, the same results should be obtained.
 - . Accurate response time measurements should result in user and/or IS changing their satisfaction ratings.
- More disturbing is that users and IS management are not drawing data from the same data base (assuming one exists).
 - Response time is by its nature measurable. It is not necessary (or always desirable) to measure each transaction. However, a standard repertory of test transactions would provide the necessary data.

- Little reliable data exist: "Average" response time, by its nature is not very meaningful. A better measure is 95th percentile response time; i.e., the minimum response time for 95% of transactions of a particular type. This gets much closer to describing peak loading situations, which is the real concern to user management.
 - . Unfortunately only one IS respondent could provide data for 95th percentile response time.
- However, before IS management begins or revises a measurement process, it must first make sure that it understands what the users' needs are. Many users have, consciously or unconsciously, a hierarchical or prioritized sense of what response time should be. Sometimes it is a fairly straightforward type of priority; e.g., two-second response time from 10 a.m. to noon and 2 to 4 p.m. and six seconds otherwise.
 - Often, however, users' needs are more complex, comprising time of day (or other cycle consideration, like time of day within day of week, season, etc.) and transaction type (or, perhaps, type of user or location).
 - It is useful conceptually to arrange these needs in an array, as shown in Exhibit III-14. This cannot be done in isolation, but in consultation with user management.
 - . The goal of this kind of planning exercise is to deliver the response time that users need. Certainly delivering less than users need should be avoided, since the penalties in user satisfaction can be substantial. (For further discussion refer to INPUT's June 1981 report, Performance Measurement and Capacity Planning.)
 - . After such determinations have been made with user management it is important that this information be communicated to those actually using the terminals. Otherwise terminal users will

EXHIBIT III-14

RESPONSE TIME NEEDS (SCHEMATIC)



interpret a tailored menu of response times as being erratic and unpredictable. Terminal user feedback to user management will be negative and, as too often happens, plans to make things better would result in making things worse.

- Consequently, priorities should not be made too complex from the standpoint of any individual terminal user. To do this requires knowledge of how particular terminals are being used.
 - . This sort of information should already be collected for capacity planning purposes.
 - . Priorities should be arranged so that from a single terminal user's perspective there are only a limited number of classes of response time; response time classes should be in any event readily explicable.
 - . Priorities across the whole computing network may, of course, be made quite complex as long as the designers understand and can communicate the underlying rationale. Needless complexity or that which brings marginal benefits should be avoided. Changes in the external environment will make complex prioritization obsolete much sooner than straightforward, robust priorities.

IV INFORMATION SYSTEMS-USER RELATIONSHIPS

IV INFORMATION SYSTEMS - USER RELATIONSHIPS

- This chapter examines relationships between IS departments and user departments in several areas, including:
 - Personnel movement between areas.
 - User data processing costs and chargeback.
 - Outside services utilization: extent of use and approval process.
 - Current efforts to measure user satisfaction by IS departments.
 - User "contracts."
 - IS and user views on IS-user problems and solutions.

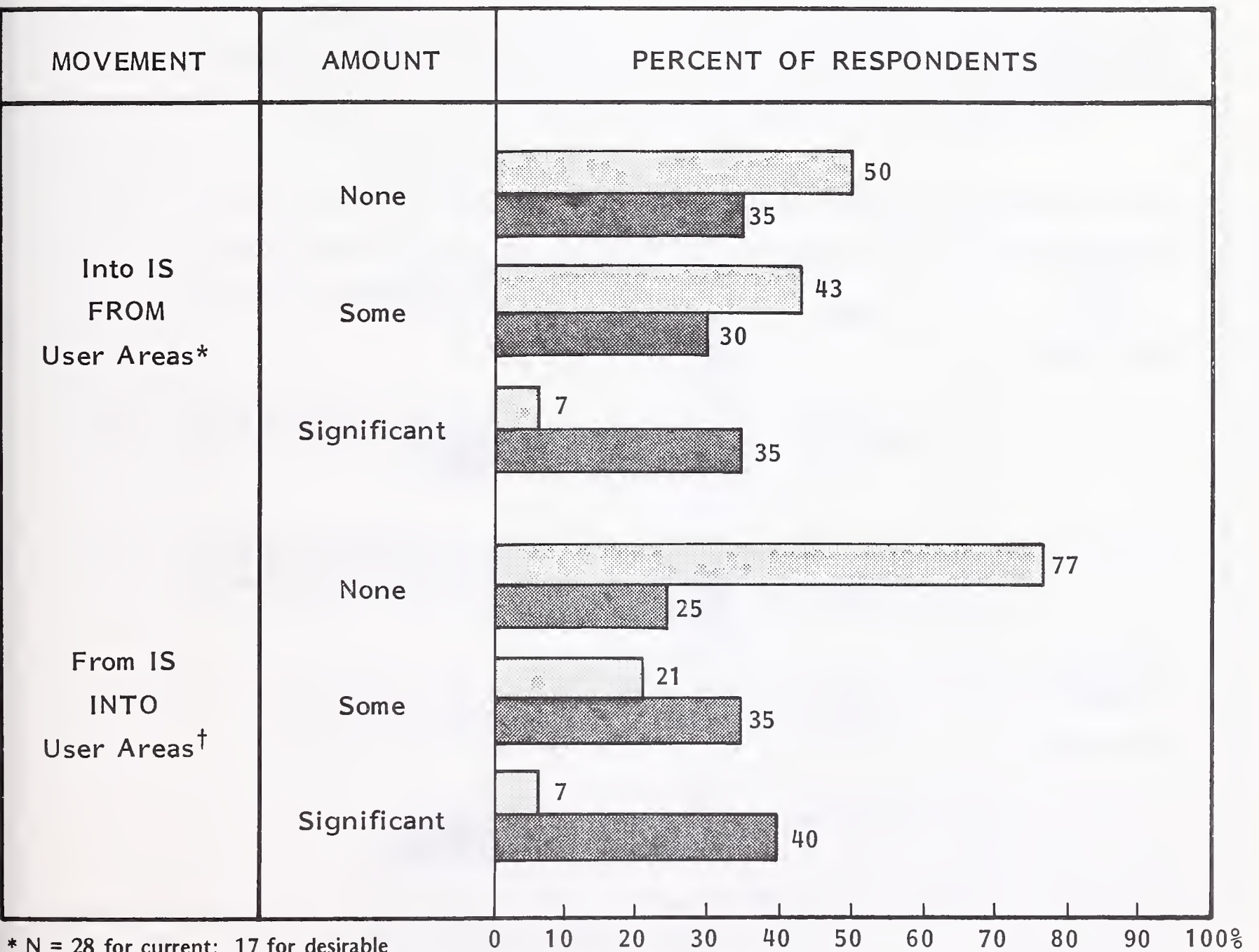
A. PERSONNEL MOVEMENT

- In the course of the in-depth interviews, IS management and managers in key user areas described:
 - The existing level of personnel movement in both directions between IS and user areas.

- The desirable level of movement between IS and user areas (in both directions).
- Responses were classified into three categories:
 - . None (i.e., no movement of personnel).
 - . Some (including small amounts or "a little" movement).
 - . Significant amounts.
- Both sets of managers are quite consistent in their assessment.
 - About half see no current movement from user to IS areas and about three-quarters see no current movement in the other direction, as shown in Exhibits IV-1 and IV-2.
 - Very few see significant amounts of movement in either direction.
 - What is most striking, and important, is that over two thirds think that at least some movement is desirable.
 - . Over one third believe a significant amount of movement is desirable.
- There are two predominant reasons given in favor of increased movement:
 - Better career paths for IS staff (given by IS management).
 - A better understanding of each other's problems (usually given by user management).

EXHIBIT IV-1

INFORMATION SYSTEMS MANAGEMENT'S PERSPECTIVE OF INFORMATION SYSTEMS - USER PERSONNEL MOVEMENT



* N = 28 for current; 17 for desirable

† N = 28 for current; 20 for desirable



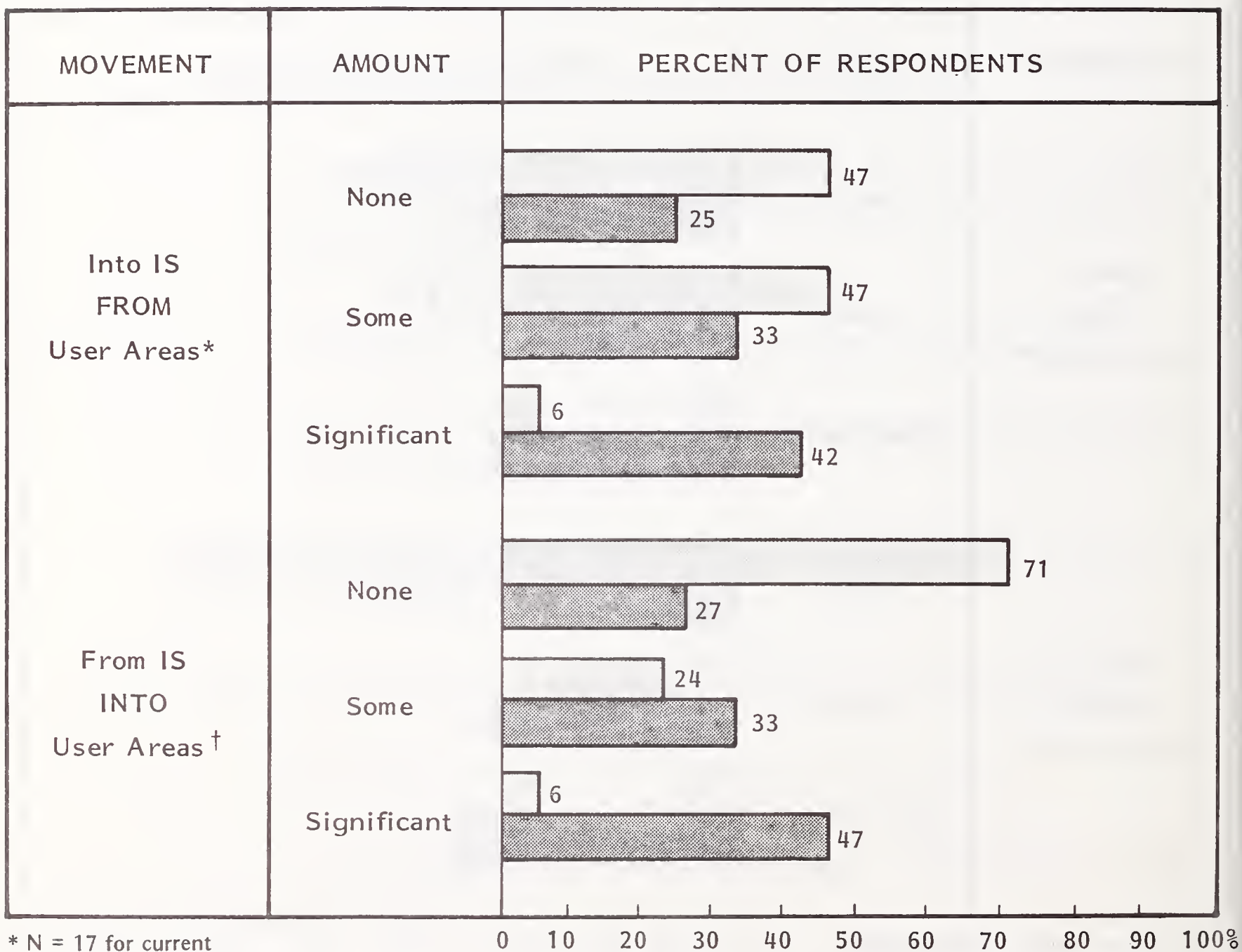
 Current Amount
 Desirable Amount

EXHIBIT IV-2

KEY USER DEPARTMENT MANAGERS' PERSPECTIVE OF INFORMATION SYSTEMS-USER PERSONNEL MOVEMENT



- This is not an easy or painless process, however, which in INPUT's experience is the main reason why there is not a higher level of transfers in most companies:
 - IS often welcomes entry level personnel, but feels it does not know how to train or integrate more senior user staff.
 - However, these more experienced user employees would be the most useful in bringing substantive experience into IS.
 - User departments too often look at IS staff for EDP liaison roles, rather than true line roles. For those with substantive data processing skills liaison roles are neither fish nor fowl and are often unsatisfying.
- It was obvious in the course of the interviews that many managers on both sides of the fence had not given serious thought to how to make a user-IS transfer a reality in their organization.

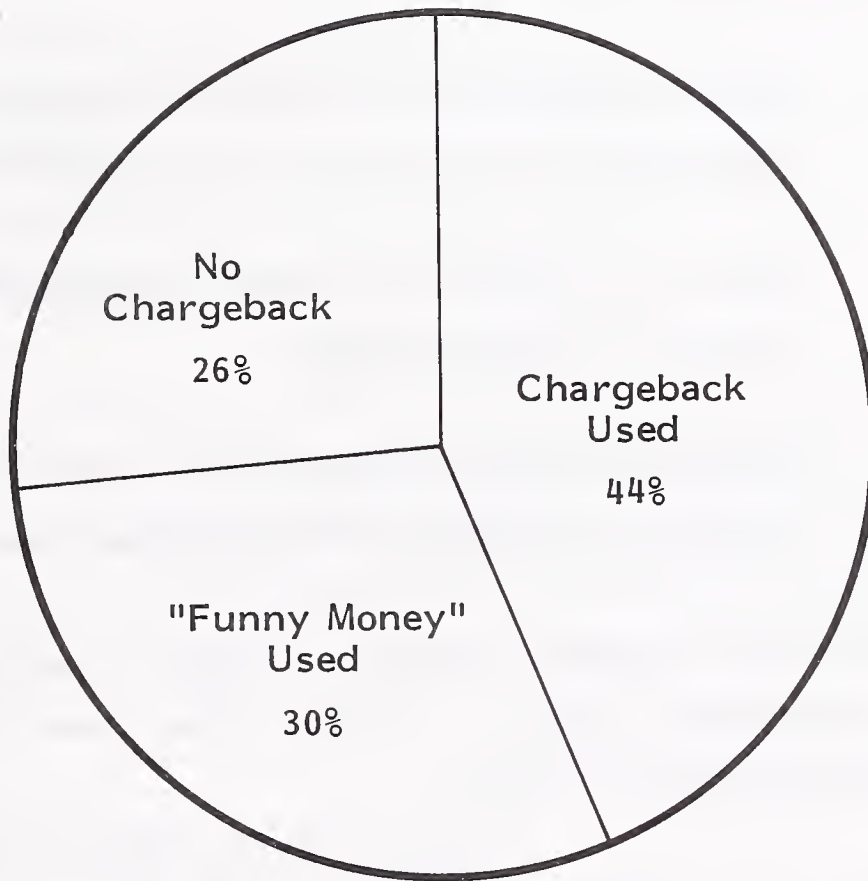
B. COSTS AND CHARGEBACK

- A disturbing fact is the relatively small amount of knowledge that even the key user departments have concerning their data processing costs.
 - Less than one-quarter were able to estimate what their department spent on data processing services from all sources.
 - The percentage of the department's total budget which was devoted to data processing represented a very wide range: from 0.5% for a large division to 50% (for a personnel department's human resource information system).

- Another quarter used the phrase "funny money" to describe the numbers which purported to describe their expenditures. They obviously did not take the numbers very seriously.
- The remaining half of respondents had no idea of their data processing expenses, typically because they were bundled into corporate overhead.
- Thus three-quarters of users report that they do not have good numbers to use to generate their costs of data processing.
- This is in spite of the fact that three-quarters of respondents report a chargeback system in place, as shown in Exhibit IV-3.
 - Note, however, the substantial "funny money" component.
 - These chargeback systems have been in use for an average of 7.5 years (with the range from one to 15 years).
 - Under one-third of respondents reported that "chargeback" dollars could be used for the purchase of anything other than internal data processing services; i.e., they were administrative, not financial dollars.
 - Hence, for most firms chargeback dollars have become another form of overhead.
 - Even this "overhead allocation" mechanism is misleading since almost all chargeback systems are only allocating machine resources.
 - Charging for hardware usage occurs because of administrative convenience as well as because the chargeback philosophy originated when machine resources were scarcer and made up a larger proportion of the IS budget.

EXHIBIT IV-3

USE OF CHARGEBACK SYSTEMS



Percent of Respondents

- In spite of these significant limitations on chargeback systems, IS management is extremely satisfied with the working of whatever system is in place (4.6 on a scale of 5).
 - IS management believes that users in general are quite satisfied (4.2) and that key users are almost as satisfied (3.8).
- However, the average key user is not nearly as satisfied (3.0) and some are extremely dissatisfied; e.g.:
 - . "We are charged for all of EDP's reruns and mistakes." (The IS department involved reports: "Users get what they pay for.")
 - . "Rates and algorithms haven't changed for ten years." (IS reports no changes planned.)
 - . "We have no control over quality of EDP personnel." (The IS respondent had stated: "Users no longer have a free ride.")
- About half of the respondents reported changes are being planned or studied for their chargeback system. In most cases these plans appear to be nontargetted or cosmetic changes.
 - This is not unexpected given IS's high degree of satisfaction with current arrangements.

C. OUTSIDE SERVICES UTILIZATION

- IS and key users are in very close agreement on the current process used to obtain outside services.

- Two-thirds report that IS approval is needed before outside services can be obtained, as shown in Exhibit IV-4.
- Users generally reported few problems with this process.
- Part of the reason for the high level of agreement and relatively few problems is that outside services are, with few exceptions, not seen as very important to either side, as shown in Exhibit IV-5.
 - Both sides see a slight decline in the importance of outside timesharing (with IS believing it to be somewhat more important than do users).
 - More important is the sharp increase in the role of personal computers seen by both groups.
- The way in which key users were selected might have biased the responses somewhat away from those who were significant users of outside services: they would sometimes not be key users from the IS viewpoint. However, the convergence of views shown here would indicate that this is probably not a serious issue.

D. MEASURING USER SATISFACTION

- Very few (11%) of IS departments have a formal program to measure user satisfaction; a somewhat larger proportion (19%) is studying the question, as shown in Exhibit IV-6.
 - A majority of respondents (59%) report some type of informal process, usually described as consisting of committees, meetings, or irregular surveys.

EXHIBIT IV-4

EXTENT TO WHICH INFORMATION SYSTEMS APPROVAL IS NEEDED FOR OUTSIDE SERVICES

IS APPROVAL FOR USING OUTSIDE SERVICES	BY PERCENT OF	
	IS	KEY USERS
Required	67%	63%
Not Required	18	25
Varies	15	12
TOTAL	100%	100%

N: IS = 27; Users = 17

EXHIBIT IV-5

IMPORTANCE OF ALTERNATIVE SERVICES

ALTERNATIVE SERVICE	ACCORDING TO			
	IS		KEY USERS	
	CURRENT	FUTURE	CURRENT	FUTURE
Outside Processing	2.1	2.1	1.3	1.1
Outside Timesharing	2.9	2.6	2.4	2.1
Turnkey	1.0	1.0	1.1	1.2
User Minicomputers/Mainframes	1.2	1.2	1.3	1.4
Consultants/User Department Programmers	1.4	1.4	1.5	1.5
Personal Computers	1.8	3.9	1.7	3.6

N: IS = 27; Users = 17

Rating: 1 = LOW, 5 = HIGH

EXHIBIT. IV-6

STATUS OF MEASURING USER
SATISFACTION BY INFORMATION SYSTEMS

STATUS	PERCENT OF IS RESPONDENTS
Formal Process In Place	11%
Studying a Formal Process	19
Might Consider a Formal Process	10
No Need for a Formal Process	60
TOTAL	100%

N = 27

- There was relatively little interest shown by respondents in doing more in this area.
 - Ten percent of IS respondents reported that they might consider increasing their efforts.
 - However, the majority of IS respondents see little need for changing (or considering changing) to a formal process of measuring user satisfaction.
- This is in contrast to the key user respondents who were much more positive toward the idea, as shown in Exhibit IV-7.
- Sample survey forms are included in Appendix D.

E. INFORMATION SYSTEM-USER "CONTRACTS"

- User "contracts" are a concept that is beginning to be discussed and, as the survey shows, beginning to be implemented, as shown in Exhibit IV-8.
 - A very small proportion actually have them in place.
 - A somewhat larger percentage have some kind of formal process; often, however, this is just a "sign-off" procedure.
- About one-quarter of IS respondents were considering some form of user agreements or were favorably disposed to the concept.
 - Almost half of IS respondents saw no need for this kind of process, for a number of reasons; e.g.:
 - Current review process satisfactory.

EXHIBIT IV-7

USER VIEWS ON MEASURING USER SATISFACTION

USER VIEWS	PERCENT OF USER RESPONDENTS
Definite Need	41%
Might Be Useful	18
Not Sure/No Reply	29
Would Not Be Useful	12
TOTAL	100%

EXHIBIT IV-8

STATUS OF INFORMATION SYSTEMS - USER AGREEMENTS

STATUS	PERCENT OF IS RESPONDENTS
User Contract Process In Place	7%
Partial Process	19
Considering	19
Positive Attitude	7
No Need Seen by IS	48
TOTAL	100%

- . Organization too small.
 - . Process too complicated.
 - . Haven't thought about it.
- This is one area, though, where IS is definitely ahead of users:
 - Organizations that were implementing a user contract system had done so very recently, so recently that user respondents were unaware of the implementation!
 - . However, the IS managers involved felt very positive about the process so far ("Works wonders," "Very satisfied," "Everybody wants one").
 - Most users interviewed had not heard of the concept. No negative ideas were expressed by users toward the concept, however.

F. INFORMATION SYSTEMS-USER PROBLEMS AND SOLUTIONS

- IS and key users were asked several open-ended questions to obtain their opinions on what the major IS-user problems are; they were also asked to suggest ways to resolve these problems.
- IS management was remarkably consistent in seeing IS-user problems as somehow arising from defects in the users themselves, as shown in Exhibit IV-9.
 - Four out of five IS managers believed that users did not understand, were not involved, or could not perform.

EXHIBIT IV-9

INFORMATION SYSTEMS VIEWS ON INFORMATION SYSTEMS - USER PROBLEMS AND SOLUTIONS

PROBLEM	PERCENT OF RESPONDENTS	SOLUTION	PERCENT OF RESPONDENTS
User Understanding -General 33% -Specific 11	44%	Increased Involvement/ Education	30%
User Involvement	22		
Corporate Communications	11		
User Performance (priorities, cost justification, etc.)	15	Chargeback System	7
None Stated	8	None Offered	63
TOTAL	100%	TOTAL	100%

N = 27

- IS management had relatively few solutions to offer, but these were mainly concerned with improving the users (i.e., education in the problems and issues of data processing).
- Users, on the other hand, divided into two groups, as shown in Exhibit IV-10:
 - Those who saw that IS and themselves just were not communicating.
 - Those who saw themselves getting unsatisfactory service from IS.
 - Note: for representative comments, see Exhibit I-2, in the management summary.
- Users saw solutions relating to their perceived problems:
 - Better communications.
 - Decentralized data processing operations. (Note that these respondents were not just asking for improved existing operations; for these respondents, there is a strong note of having lost hope in having their problems resolved by "business as usual.")
- This gulf between IS and users is a serious one. The remainder of this study will address the issue of how IS management can rectify matters.

EXHIBIT IV-10

KEY USER VIEWS ON INFORMATION SYSTEMS-USER PROBLEMS AND SOLUTIONS

PROBLEM	PERCENT OF RESPONDENTS	SOLUTION	PERCENT OF RESPONDENTS
IS-User Communications	47%	Better Communications	35%
Unsatisfactory Service	41	Decentralized Operations - General 30% - Personal Computers 17	47
None Stated	12	None Offered	18
TOTAL	100%	TOTAL	100%

N = 17

V CONCLUSIONS AND RECOMMENDATIONS

V CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

- Users are far less content and far more willing to consider alternatives to existing data processing arrangements than IS believes.
- While in some respects users are satisfied with the level of service they are receiving, in certain key areas they are not; i.e., in:
 - Terminal downtime.
 - Terminal response time.
 - Program development requests.
- The areas with the greatest problems are exactly those areas where users have the most contact with IS. Thus, there is no room for the self-satisfaction that some IS management exhibits.
- Chargeback systems are not the panacea they were once believed to be:
 - Most users cannot freely choose alternatives.

- In many cases chargeback systems are accounting artifacts and, equally important, are so perceived to be.
- By their nature, chargeback systems measure and "charge" for resources used, rather than value received.
- Consequently, chargeback systems are not self-regulating mechanisms which will "give users what they pay for."
- A better approach is that used by some IS departments, which is to obtain user feedback:
 - Formally, through surveys.
 - Informally, by contacts and meetings.
- Both approaches have drawbacks.
 - Surveys are often episodic and usually do not involve user management as a partner.
 - Informal contacts are very subjective and may avoid key issues.
 - Most importantly, neither approach provides a reference point to measure progress against.
 - Often, of course, a user has never analyzed exactly what the department's particular needs are. The temptation is great, then, for IS to guess what the user's target is. Not surprisingly such guesses are usually wrong.

B. GENERAL RECOMMENDATIONS

- Chargeback systems should be viewed as, at best, a cost accounting tool. Periodically, such data should be used as an input to determine the cost of a process or product.
- If chargeback systems are to carry out this limited function, the costing mechanisms must be greatly expanded:
 - All costs, not just hardware costs, should be tracked.
 - Software maintenance costs, especially, should be tracked by project and user. This is rarely done now.
 - Costs should be based on resources denied, not resources consumed.
- IS management should strongly distrust what it believes user satisfaction to be in the absence of objective, rigorously obtained information.
- Surveys and other attempts by IS to gain such knowledge can lead to frustration by both IS and users:
 - For IS, because user "satisfaction" can prove to be elusive and mercurial, seemingly reflecting last week's triumph or crisis.
 - Users, on the other hand, can view such well meaning surveys as goads which remind them of the poor service they believe they are receiving.
- Similar efforts to improve communication will often only make it easier for each side to abuse the other.
- IS should resolve these, and a number of related problems, by recognizing that user expectations and IS performance should be linked. Too often the two

exist, at best, in separate vacuums and, all too often, are not consciously examined.

- After examining current practice and problems, INPUT believes that an initiative that would usefully serve many organizations is the "user contract" or as INPUT prefers to describe it, the user "service agreement."
- User agreements, if executed successfully, establish common standards against which performance can then be monitored.
 - This sets up the dialogue which users desire.
 - IS gets its chance to "educate" users.
 - Expectations can often be influenced and managed by IS.
 - A joint measuring process is established.
 - Regular reports and meetings provide early warning of changing needs and objectives.
- The next section is devoted to exploring the opportunities inherent in service agreements.

C. USER SERVICE AGREEMENTS

- There are four aspects to implementing user service agreements ("user contracts") in an organization:
 - Deciding whether service agreements are, in fact, suitable for a particular organization.

- Defining the agreements' contents.
 - Establishing the initial service agreements.
 - Ensuring that IS has the resources to support the process.
- Each of these points will be discussed in this section.
1. DECIDING WHERE SERVICE AGREEMENTS ARE ADVISABLE
- Some organizations are bad bets for introducing service agreements. Examples of this type of environment include:
 - Basic corporate policies are in a constant state of flux.
 - If the corporation cannot answer the question, "Who am I?", then particular user areas will have similar problems in consistently enunciating their needs.
 - IS itself will also be buffeted in this sort of environment and would find it difficult to live up to its commitments.
 - User management turnover is high and/or user management is not strong or very political.
 - Agreements cannot be built on sand.
 - The underlying business is subject to marked fluctuations that cannot be predicted or influenced by the organization.
 - Reaction and catchup ball are the watchwords. Agreements would not make much sense.

- This is not to say that an organization must be rigid and unchanging to benefit from service agreements.
 - The best environment is one that is growing and dynamic.
- In addition, the corporate environment should be receptive to planning in general.
 - The environment would be very favorable if past planning efforts have resulted in bottom-line benefits that are widely perceived and accepted.

2. FACTORS DEPENDENT ON INFORMATION SYSTEMS

- Some of the critical factors for making service agreements work are dependent on the nature and capabilities within IS itself. It makes no sense to enter into agreements which IS stands little chance of fulfilling.
- For example, some "central" or "corporate" IS departments are staff, planning, or coordinative groups. They often do not have either the detailed operational knowledge or means of allocating specific operational resources.
 - This kind of group will find it difficult to avoid over- or under-committing resources. It will also find it difficult to make resource reallocations.
- The capabilities of IS staff and computer resources must be candidly assessed.
 - Some IS organizations may be in a rebuilding phase. Taking on voluntary commitments that would result in more failure is not the way to nurse the patient back to health.

- On the other hand, where IS management is new and has succeeded in making internal improvements, service agreements are a way of making the new state of affairs clear to the outside world.
- Finally, there are some specific capabilities that will be required to make the process work:
 - Project and time estimating skills will be important for IS to carry out its contractual responsibilities.
 - An adequate system should be in place.
 - Linked with estimating skills is the requirement to deal with performance measurement questions. As noted earlier, terminal uptime and response time are two of the most critical issues involved.
 - In many organizations, these measurements are performed incompletely or not at all.
 - It may be necessary to rely on user personnel for some measurements in these areas, in order to build trust and communication.
- Exhibit V-1 summarizes the effects of the organizational and IS factors that affect the advisability of introducing service agreements.

3. USER-RELATED FACTORS

- Service contracts will not serve a useful purpose if relations with a particular user are getting worse or are already bad.

EXHIBIT V-1

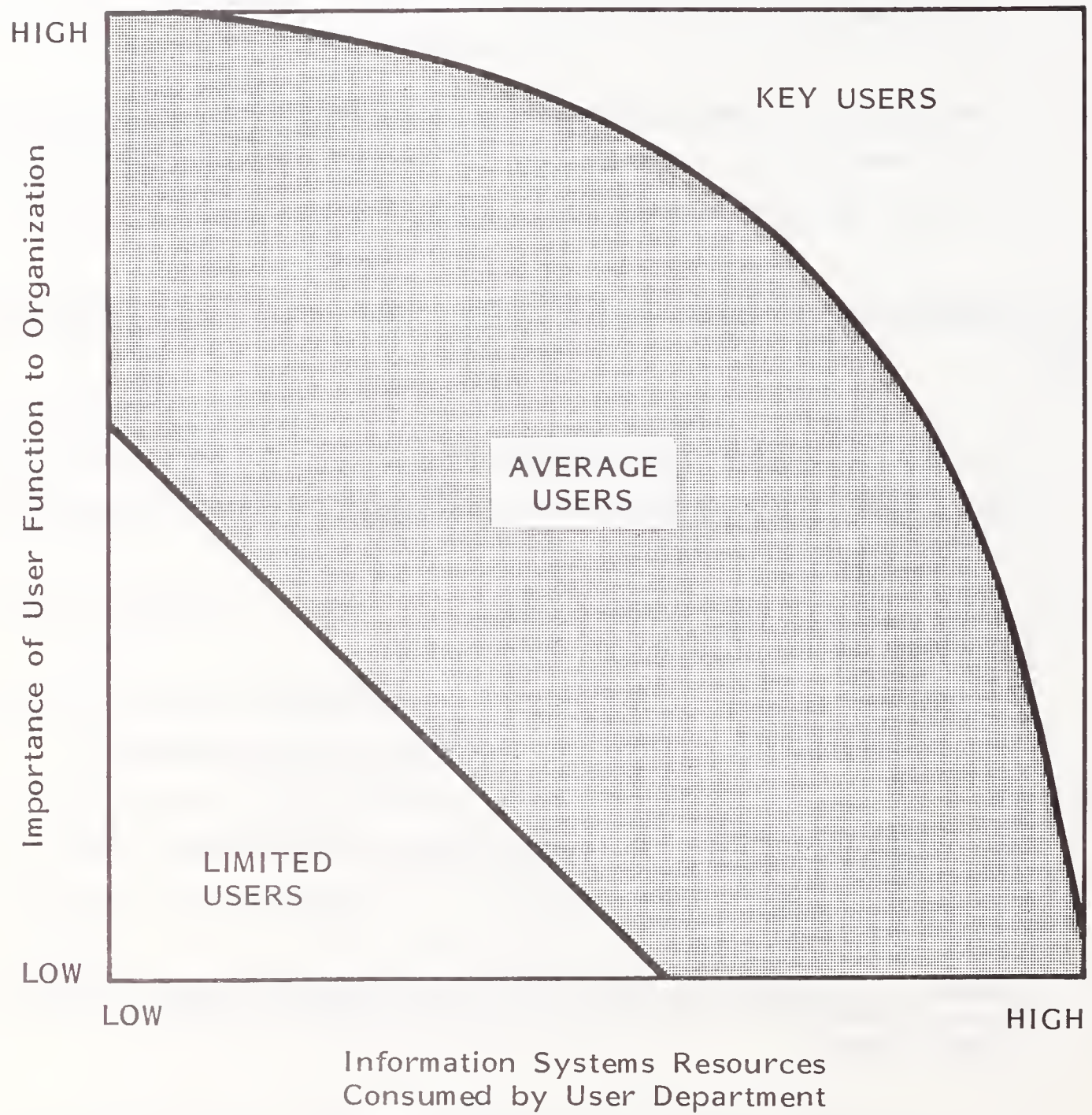
ORGANIZATIONAL AND INFORMATION SYSTEMS FACTORS AFFECTING ADVISABILITY OF INTRODUCING SERVICE AGREEMENTS

FACTOR	POSITIVE ELEMENT	NEUTRAL ELEMENT	NEGATIVE ELEMENT
Corporate Organization	Dynamic	Rigid	Unstable
Planning Receptivity	High		Low
Type of IS Organization	Centralized	Decentralized	Central Coordination
IS Personnel Capabilities	High		Low
IS Top Management Time in Office	Short	Medium, Long	
Hardware Capacity	Adequate		Inadequate
Telecommunications Reliability	High		Low
IS Time Estimating Track Record	Reliable		Unreliable
IS Performance Measurement Capabilities	High		Low

- There is a minimum level of trust and confidence required to make such agreements work. If this is lacking, trying to introduce a new, unfamiliar issue will, at the least, further complicate matters and, at worst, make the user think IS is trying to divert attention from existing, well-known problems.
- However, where relations are improving, even if still not very good, a service agreement can be further evidence of IS's commitment to improvement.
- There can sometimes be a thin line between these two situations and it can be useful to initially introduce an intermediary (either from inside or outside the firm) to assess the situation objectively.
- It is important that key users be distinguished from the average and limited users.
 - It is the key users who usually determine whether data processing will be successful in an organization and how much the use of the computer will contribute to the firm.
 - Key users are identified by a combination of:
 - . The importance of the user department to the organization.
 - . The proportion of IS resources (human and hardware) which the user department consumes.
 - Exhibit V-2 illustrates graphically the relationships between the three types of users.
 - . Generally, where a department consumes significant systems resources and/or the department is important to the company, the department will be a key user.

EXHIBIT V-2

DISTINGUISHING KEY USERS FROM OTHER USERS



- Note, however, that where there is a pairing of extremes (high consumption - low departmental importance, or vice-versa), this is probably not a key user.
 - Some IS organizations may find that they in fact have few key users: their biggest customers are not very important in the totality of the organization. Missionary work, which may or may not involve service agreements, would certainly be indicated.
- Knowledgeable, sophisticated users are certainly good candidates for user contracts.
 - Many of the definitional and expectation problems caused by more naive users will be absent.
 - This kind of user is also often more involved with the IS department and data processing operations.
 - Of course, they cannot be ignored so easily when things go wrong.
- Where users are increasing their use of services not supplied by IS this can be a sign that a service agreement is needed so that they receive the services they need.
 - Sometimes users go outside for services that IS cannot supply at all (e.g., certain external information data bases) or cannot do feasibly (e.g., a personal computer on every analyst's desk).
 - However, sometimes users look elsewhere because they believe, rightly or wrongly, that IS cannot meet their needs.
 - Drawing up an agreement with the user will, at the least, identify whether this is so.

- Finally, current user satisfaction as perceived by IS should not be a factor in deciding whether to establish service agreements. As shown earlier, IS is more likely to be wrong than right in this assessment.
- Exhibit V-3 summarizes the effects of these user-related factors that would affect the advisability of introducing service agreements.

4. SERVICE AGREEMENT CONTENTS

- Service agreements should focus on essentials. The following is not required:
 - Complexity.
 - Undue formality.
 - Legalisms.
 - Rigidity.
- Service agreements could become extremely large, if every element of IS-user relationships were defined. In many cases this is not necessary. Where routine operations (e.g., batch financial systems) have been operating smoothly for many years, the adage, "if it ain't broke, don't fix it," should be followed.
- The areas that should be focussed on are those areas that are new, critical and/or have a significant problem potential. INPUT's research indicates that for many IS departments the critical areas will be:
 - Terminal downtime.
 - Response time.
 - Program development requests.

EXHIBIT V-3

USER-RELATED FACTORS AFFECTING ADVISABILITY OF INTRODUCING SERVICE AGREEMENTS

FACTOR (Separate for Each User)	POSITIVE ELEMENT	NEUTRAL ELEMENT	NEGATIVE ELEMENT
Relations with User	Moderate; Bad, But Improving	Excellent	Moderate & Worsening; Bad
Amount of Outside Services Used	Increasing	Stable; Decreasing	
User Sophistication	High	Low; Medium	
Importance of EDP to User	High		Low
Proportion of IS Resources Used	High	Low; Medium	
Amount of User Involvement	High	Low; Medium	
User Satisfaction as Perceived by IS		Low, Medium, High	

- The exact issues to be dealt with will naturally vary from user to user, depending on their needs and the status of the application. However, there will be certain points that should at least be considered in every case.
 - Exhibits V-4, V-5, V-6, are checklists of items that should be considered for inclusion in every agreement.
- User agreements should be viewed as flexible, open-ended documents with provision for modification by either side, based on changing conditions.
 - Again, a legalistic or buyer-seller state of mind should be avoided. It is important that both sides be able to give as much warning as possible to the other when adverse conditions threaten. Otherwise, the tendency will be to hope for the best and postpone bad news as long as possible.
- This raises a related question of whether chargeback rates should be included in the agreement.
- One of the main advantages to using the term "service agreement" is avoiding the word "contracts" which implies a buyer-seller relationship.
 - Most IS operations are not set up in such a way that real money (or even reliable pseudo-money) changes hands.
 - As indicated earlier, most chargeback systems are, at best, accounting conventions.
 - Unless the chargeback system is thought through as least as well as the user agreement, it would be a mistake to associate the two in one package.
- If charges are not included in the agreement, then what does IS get out of the agreement? Are promises being made, with nothing received in return?

EXHIBIT V-4

SERVICE AGREEMENT CONTENT: TERMINAL DOWNTIME CHECKLIST

- Definition, i.e., by type of malfunction
 - Local hardware
 - Communication line
 - Central hardware
 - System software
 - Applications software
- Uptime requirements by
 - Time period, e.g.,
 - Time of day
 - Day of week
 - Season, etc.
 - Location (geography, organization)
 - Equipment type
- Malfunction repair
 - Responsibility, by type of malfunction
 - Process
 - Equipment backup and depoting
- Measurement methodology, e.g.,
 - User problem logs
 - System monitors
- Measurement responsibilities
 - Reporting
 - Meetings

EXHIBIT V-5

SERVICE AGREEMENT CONTENT: RESPONSE TIME CHECKLIST

- Definition, i.e.,
 - Minimum
 - Maximum
 - Average (mean)
 - Average (median)
 - Percentile (e.g. 95th)
- Requirements by
 - Time of day
 - Time period (day of week, month, season, etc.)
 - Location (geography, organization)
 - Type of transaction
- Priorities by type of requirement
 - E.g., where contention/degradation occur
- Measurement methodology, e.g.,
 - System monitors
 - On-site stopwatch sampling
- Measurement responsibilities
 - Reporting
 - Meetings

EXHIBIT V-6

SERVICE AGREEMENT CONTENT: PROGRAM DEVELOPMENT REQUEST CHECKLIST

- Definition
 - Levels of requests
- Process
 - Forms
 - Information
 - Routing to be followed
- User responsibility
 - Screening
 - Prioritizing
 - Batching of requests
 - Benefit assessment
 - Benefit measurement
- Cost/benefit process
 - When to be applied
 - Payback criteria
- Feasibility study role
 - Content
 - Role of rapid prototyping
 - Turnaround
- Maintenance "release" cycle
 - Time period
 - Exception process

- IS management should squarely face the fact that they are an internal service organization. All benefits are supposed to flow in one direction, hence: service agreement.
- What IS management receives is:
 - A baseline on which to be judged.
 - A measurement process agreed to by key users.
 - A standardized process for being informed of changes in user activities.

5. DEVELOPING USER SERVICE AGREEMENTS

- In most organizations there will be little initial pressure from users to establish data processing service agreements.
 - As indicated in the study findings, there is as yet little user awareness of the concept.
- Consequently, IS can introduce user service agreements in a cautious, orderly process.
 - Exhibit V-7 shows the typical steps that should be followed in developing user service agreements.
- Most of the steps have been discussed in previous sections.
 - Make sure that top management and user managers understand the concept. It is important not to use the word "contract."
 - Be prepared to be flexible and, within reason, to modify the form of agreements to meet user demands.

EXHIBIT V-7

STEPS IN DEVELOPING USER SERVICE AGREEMENTS

1. Decide whether service agreements are advisable in the organization's environment.
2. Develop and tailor a concept for the specific organization.
3. Classify users into key, average, and limited use categories.
4. Discuss concept with top management, key users, and selected average users.
5. Develop draft agreement guidelines.
6. Negotiate a pilot agreement with one or more average users.
7. Revise guidelines after pilot is in place.
8. Circulate revised guidelines to key users; modify as required.
9. Negotiate agreements with key users.
10. Negotiate agreements with remaining average users after arrangements with key users are working satisfactorily.
11. Negotiate agreements with limited users after all other agreements are in place.

- Do not promise more than can be delivered.

6. INFORMATION SYSTEMS RESOURCES NEEDED

- Assuming that IS has made the correct choice in deciding to implement service agreements, then the basic resources that IS needs to support the process will be in place.
- However, there will be some specialized skills and tools that will be of considerable assistance in making service agreements work. These include:
 - Cost estimating.
 - Performance measurement.
 - Decision support systems.
 - Rapid prototyping.
- Recent INPUT studies have discussed and recommended initiatives in these areas:
 - Performance Measurement and Capacity Planning, June 1981.
 - Decision Support Systems, September 1981 (Decision Support Systems and Prototyping).
 - Budgeting and Planning Techniques, June 1982 (Cost estimating and prototyping).

**APPENDIX A: INFORMATION SYSTEMS MANAGER
QUESTIONNAIRE**

EVALUATING LEVELS OF SERVICE: EDP DIRECTOR QUESTIONNAIRE

We are doing a study on how data processing service levels for user departments are established, measured and evaluated, i.e., how well EDP departments are meeting user needs and what plans exist for improvement.

I. First of all, I would like to get an understanding of your data processing operation.

How large is your company's overall business and what portion of it does your own EDP operation support?

	<u>DOLLAR</u> <u>REVENUES</u>	<u>NUMBER OF</u> <u>LOCATIONS</u>	<u>NUMBER OF</u> <u>EMPLOYEES</u>
Total Company Size	_____	_____	_____
Portion Supported	_____	_____	_____

- What is your 1982 EDP budget = \$_____ million
- What mainframes do you have:

<u>Manufacturer/Model</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____
_____	_____

- What is the approximate percent of cycles that are used to support on-line systems? _____%
- Used by the EDP department? _____
- Used by user departments? _____

2. About what percent of your programmer/analyst resources are devoted to developing new systems (including major rewrites or enhancements to existing systems)? _____%

- What was this percentage two years ago? _____%

- What percentage do you expect two years from now?

_____%

3. In some of the questions that I am going to ask you, I'll be contrasting what happens concerning all your systems generally with what happens in regard to your key (i.e., most important) system or function.

- What system or function do you consider to be the key one?

- Why is it considered to be the most important?

- How large is it?

- In terms of approximate percent of machine resources used?

_____%

- Using other measures.

- Which department(s) is the chief user of this application?

- When was this system first installed?

- About how many major enhancements or extensions have taken place?

4. What special tools or techniques do you use in the development or maintenance process (e.g., pride/ASDM, bubble charts, HIPO charts, etc.)? How long have you used them? Were/are they used for your key system? How satisfied are you generally with their effectiveness?

[illegible]

* = 1 = Low; 3 = Medium; 5 = High

- 5a. What is the system uptime percent for your computer system generally during the prime shift? How would you rate the acceptability of this uptime percent, both from your standpoint and from that of your users? What do you think the situation was two years ago and what do you think it will be two years from now?

	<u>Percent</u>	<u>Level Of Acceptability*</u>	
		<u>EDP Department</u>	<u>User Departments</u>
Now?	_____	_____	_____
Two years ago?	_____	_____	_____
Two years from now?	_____	_____	_____

*1 = Low; 3 = Medium; 5 = High

- What kind of measurements do you use to track this data? Describe.

- What improvements do you have planned?

5b. Please describe any differences for your key system?

5c. Please estimate the average uptime percent for an average user terminal during the hours needed? (This would include the uptime for the computer system in "a" above as well as that for communication controllers, trunk and secondary communication lines, modems, individual terminals, etc.)

_____ %

6. What is the terminal response time for users generally as well as for the key system? If possible give both the median response time and that which 95% of your transactions experience. How satisfactory is this response time?
- In your view?
 - To users generally?
 - To key system users?

What were response times and satisfaction two years ago? What do you expect them to be in two years? (Note: If on-line systems not used, use batch turnaround and delivery times.)

	Now	Two Years Ago	Two Years From Now	Comment
Response Time (sec)				
Users Generally Median 95%				
Key Users Median 95%				
Satisfaction*				
EDP Department				
Users generally				
Key Users				

*1 = Low; 3 = Medium; 5 = High

- 7a. About how much movement annually, both temporary and permanent, is there between the EDP department and user departments, expressed as a percentage of total EDP personnel.

	Annual Movement, As Percent Of EDP Staff	
	<u>Rotation</u> (i.e., Temporary)	<u>Transfer</u> (i.e., Permanent)
Into EDP Department	_____	_____
Out of EDP Department	_____	_____

- What is the general level/title of such people?

- 7b. About how much more (or less) of such movement should there be?

Why? _____

8. What level of service do you think the EDP department is providing to user departments in general and for the key system? Why? What level of service do they think they are receiving, in your opinion? Why?

What do you think these ratings were two years ago?

<u>Level Of Service</u>	<u>Rating*</u>		<u>Comment</u>
	<u>Now</u>	<u>Two Years Ago</u>	
EDP view	_____	_____	_____
All user view	_____	_____	_____
Key user view	_____	_____	_____

9. How would you rate EDP department performance now and two years ago in the following areas, both generally and for the key system?

	<u>All Systems*</u>		<u>Key System*</u>	
	<u>Now</u>	<u>Two Years Ago</u>	<u>Now</u>	<u>Two Years Ago</u>
Documentation	_____	_____	_____	_____
Training	_____	_____	_____	_____
System User Friendliness	_____	_____	_____	_____
Customer Service (e.g., Responding to "hot line" calls)	_____	_____	_____	_____
System Quality	_____	_____	_____	_____
Correctness of Programs	_____	_____	_____	_____
Meeting Schedules	_____	_____	_____	_____

*1 = Low; 3 = Medium; 5 = High

10. I would like to learn the extent that user departments are using data processing services other than that supplied by the company's central EDP department.

10a. Do user departments have to seek the approval of the central EDP department before using another source of service?

() YES () NO

If yes, go to 10b; if no, go to 10c.

Why? _____

10b. If yes, does the process work?(Describe)

Is approval generally given?

How often do user departments ignore this process?

10c. If no, do you track how much user departments use another source of service?

() YES () NO

If yes, about how accurate is the tracking process in terms of tracking dollars
+ or -?

_____ %

If no, why not?

10d. Which of the following alternative sources are used by user departments generally as well as for the department(s) involved in your most important system. How important would you say these alternative sources are now to them and how important will they be in two years? (Read list)

Source	1982 Importance*		1984 Importance*		Comment
	Users Generally	Most Important System	Users Generally	Most Important System	
Outside transaction processing (e.g., payroll)					
Outside timesharing (e.g., financial modeling software)					
Turnkey systems					
Personal computers					
Minicomputer systems					
Outside consultants					
Department controlled and paid programmers/analysis					
Department controlled and budgeted mainframes					

*1 = Low; 3 = Medium; 5 = High

10e. What level of assistance do you provide user departments in selecting or managing the use of such outside sources? (Prompt from list)

Alternative External Source	Level of Assistance*	Comment
Outside timesharing (e.g., financial modeling software)		
Turnkey systems		
Personal computer		
Minicomputer systems		
Outside consultants		
Department controlled and paid programmers/analysis		
Department controlled and budgeted mainframes		

*1 = Low; 3 = Medium; 5 = High

10f. Do you plan to offer an in-house or EDP-department supplied alternative to any of the above sources; about what portion do you plan on getting back under EDP department control? (Don't ready list; use as classifications)

Source	In-House Alternative	Percent Back Under EDP Dept.	By When?	Comment
Outside transaction processing (e.g., payroll)				
Outside timesharing (e.g., financial modeling software)				
Turnkey systems				
Personal computers				
Minicomputer systems				
Outside consultants				
Department controlled and paid programmers/analysis				
Department controlled & budgeted mainframes				

*1 = Low; 3 = Medium; 5 = High

- II. Please tell me the two biggest problems you have in dealing with user departments?
Why are these issues problems? What are you doing to deal with them?

Problem	Reasons	Solution

12. How would you rate the involvement of user departments generally in making the major decisions in what a new system (or major enhancement) will contain (i.e., system specifications)?

- How satisfied would you say that you are with this level of involvement?
 - Users generally?
 - Key users?
- How does this compare with the situation two years ago?
 - What do you expect it to be two years from now?

	Satisfaction With This Involvement*			
	Rating**	EDP Dept.	All Users	Key Users
Now	_____	_____	_____	_____
Two years ago	_____	_____	_____	_____
Two years in future	_____	_____	_____	_____

* = 1 = Low; 3 = Medium; 5 = High

**1 = All by EDP; 2 = Most by EDP; 3 = Shared between EDP and users; 4 = Most by users; 5 = All by users

13. What is the level of user involvement in design reviews (for new development/major enhancements)?

		<u>Satisfaction With This Level*</u>		
	<u>Rating**</u>	<u>EDP Dept.</u>	<u>All Users</u>	<u>Key Users</u>
Now	_____	_____	_____	_____
Two years ago	_____	_____	_____	_____
Two years from now	_____	_____	_____	_____

*1 = Low; 3 = Medium; 5 = High

**1 = All by EDP; 2 = Most by EDP; 3 = Shared between EDP and users;
4 = Most by users; 5 = All by users.

- Describe what changes are planned.
-
-
-
-

14a. Suppose a user department requests system development work (either a new system or an enhancement). About how long would it be before (a) a feasibility study began and (b) the actual system development work began? Assume that there are four levels of ultimate effort involved:

- Several man-days, or
- Several man-months, or
- Several man-years, or
- Many man-years.

About how long would it be before a feasibility study began (if any) and the actual systems development work began?

Level of Effort	Months Before Work Begins On		Comments
	Feasibility Study	Systems Development	
Several Man-Days			
Several Man-Months			
Several Man-Years			
Many Man-Years			

14b. How satisfied is the EDP department, user departments generally and the key user departments with these time periods? Why?

	Satisfaction*	Reason
EDP Department		
All Users		
Key Users		

- What changes are planned?

15a. Do you (or have you) used a chargeback system?

() YES () NO

15b. If yes:

- How long have you used it?

- What kind of units are used to establish charges?

- Resource usage units (e.g., CPU cycles, disk tracks, etc.)

- Output units (e.g., per report, per transaction, etc.)

- How are development and maintenance costs charged?

- Is the chargeback system primarily administrative or financial in nature; that is:

- If a department overruns does it need administrative approval as opposed to a change in its budget? (Describe)

- Can budgeted EDP dollars be spent on either internal or external data processing services as the user department sees fit? (Describe)

- Can unspent chargeback dollars be used for non-data processing expenditures (or be switched around as easily as any other budget categories)? (Describe)

- In general, how well has your chargeback system worked and why?

	Satisfaction*	Reason
From the standpoint of:		
The EDP department?		
User departments in general?		
The department(s) concerned with the key system?		

*1 = Low; 3 = Medium; 5 = High.

- What changes do you plan to make to the chargeback system and why?

16a. Do you measure user satisfaction?

() YES () NO

16b. If yes:

- How long have you done so?

- What is the process?

- What are some of the important things you have learned?

- What changes have you made to your operation as a result?

- What changes do you expect to make in your process? Why?

16c. If no:

- Why not?

- Do you plan to? Why?

17a. Have you used or are considering using so-called "user contracts" with your users?

() YES () NO (Go to 17d)

17b. If yes:

- Who took the initiative and why?

- Please describe what is/will be included?

17c. If now used:

- How long have they been used?

- What is the level of satisfaction (and why) among the parties involved?

Party	Satisfaction*	Reason
EDP Department		
User Departments Generally		
Departments Using Most Important System		

*1 = Low; 3 = Medium; 5 = High

- What changes do you have planned and why?

17d. If no:

- Why haven't you considered using a user contract?

- Under what conditions might you consider using a user contract?

18. Service satisfaction can be viewed as having two components.

- Objective, quantifiable factors, such as response time, system reliability, etc.
- Qualitative factors, such as attitudes, personalities, etc.

In your organization how important would you say that each of these factors is in determining satisfaction with EDP levels of service? How do you expect the importance to change in the future?

	Importance*	Change Expected
Quantitative		
Qualitative		

*1 = Low; 3 = Medium; 5 = High

19. What other plans, not touched on here, do you have for improving service to user departments?

20. In some cases we plan on interviewing user personnel also. Can you suggest one or more users who would be quite knowledgeable about your key system?

Name: _____

Title: _____

Department: _____

Telephone (If available): _____

Name: _____

Title: _____

Department: _____

Telephone (If available): _____

APPENDIX B: KEY USER QUESTIONNAIRE

EVALUATING LEVELS OF SERVICE: EDP SERVICE USER

We are doing a study on how data processing service levels for user departments are established, measured, and evaluated, i.e., how well EDP departments are meeting user needs and what plans exist for improvement.

I. First of all, I would like to get an understanding of your department/division's operations.

- Number of employees: _____
- Number of locations: _____
- Department budget: \$_____ million
- Your spending on EDP services.
 - Chargeback/allocation for corporate EDP services:
\$_____ million
 - Spending on outside EDP service, consultants, contractors, etc.
\$_____ million
 - Spending from your own budget for EDP specialists on company payroll and for your own EDP equipment.
\$_____ million
 - Total \$_____ million

2. What data processing activity do you consider to be your key (i.e., most important) system or function?

- Why is it considered to be the most important?

- How large is it?

- Using other measures.

- About how many major enhancements or extensions have taken place?

- What improvements are you expecting to make in the system?

3a. How important to your key EDP system is having computer terminals that are available at all times during your working hours? (*1 = Low; 3 = Medium; 5 = High)

_____*

3b. About what percent of the time would you say that the typical terminal on your key system is actually working and available (i.e., is "up")? _____%

- Is this satisfactory:
() YES () NO

Why? _____

- What actions are you and/or the EDP department taking to improve it?

4. What is the average terminal response time on your key system? What is the response time which 95% of your transactions experience? How satisfactory is this response time?
- In your view?
 - To users generally?
 - To key system users?
- What were response times and satisfaction two years ago? What do you expect them to be in two years? (Note: If on-line systems not used, use batch turnaround and delivery times.)

	Now	Two Years Ago	Two Years From Now	Comment
Response Time (sec)				
Key Users Median 95%				
Satisfaction*				
Key Users				

*1 = Low; 3 = Medium; 5 = High

5a. About how much movement annually, both temporary and permanent, is there between the EDP department and your department?

	<u>Annual Movement</u>	
	<u>Rotation (i.e., Temporary)</u>	<u>Transfer (i.e., Permanent)</u>
Into EDP Department	_____	_____
Out of EDP Department	_____	_____

- What is the general level/title of such people?

5b. About how much more (or less) of such movement should there be?

Why? _____

6. What level of service do you think the EDP department is providing to user departments in general and for your key system? Why?

What do you think these ratings were two years ago?

<u>Level Of Service</u>	<u>Rating*</u>		<u>Comment</u>
	<u>Now</u>	<u>Two Years Ago</u>	
All user view	_____	_____	_____
Key user view	_____	_____	_____

7. How would you rate EDP department performance now and two years ago in the following areas, both generally and for your key system?

	<u>All Systems*</u>		<u>Key System*</u>	
	<u>Now</u>	<u>Two Years Ago</u>	<u>Now</u>	<u>Two Years Ago</u>
Documentation	_____	_____	_____	_____
Training	_____	_____	_____	_____
System User Friendliness	_____	_____	_____	_____
Customer Service (e.g., Responding to "hot line" calls)	_____	_____	_____	_____
System Quality	_____	_____	_____	_____
Correctness of Program	_____	_____	_____	_____
Meeting Schedules	_____	_____	_____	_____

*1 = Low; 3 = Medium; 5 = High

8. I would like to learn the extent that user departments are using data processing services other than that supplied by the company's central EDP department.

- 8a. Do user departments have to seek the approval of the central EDP department before using another source of service?

() YES () NO

If yes, go to 8b.

Why? _____

8b. If yes, does the process work?(Describe)

Is approval generally given?

How often do user departments ignore this process?

9. Which of the following alternative sources of data processing services do you use? How important would you say these alternative sources are now to them and how important will they be in two years? (Read list)

	1982 Importance*	1984 Importance*	Comment
Outside transaction processing (e.g., payroll)			
Outside timesharing (e.g., financial modeling software)			
Turnkey systems			
Personal computers systems/minicomputer systems			
Outside consultants			
Department controlled and paid programmers/analysis			
Department controlled budgeted mainframes			

*1 = Low; 3 = Medium; 5 = High

10a. What level of assistance does the EDP department provide your department in selecting or managing the use of such outside sources? (Prompt)

Alternative External Source	Level of Assistance*	Comment
Outside transaction processing (e.g., payroll)		
Outside timesharing (e.g., financial modeling software)		
Turnkey systems		
Personal computer systems/minicomputer systems		
Outside consultants		
Department controlled and paid programmers/analysis		
Department controlled and budgeted mainframes		

*1 = Low; 3 = Medium; 5 = High

10b. If the EDP department offered in-house alternatives to your current outside sources of data processing services, would you see it as an advantage or disadvantages? Why?

11. Please tell me the two biggest problems you have in dealing with the EDP department?

Why are these issues problems? What is being done to deal with them?

Problem	Reasons	Solution

12. How would you rate the involvement of your department in making the major decisions in what a new system (or major enhancement) will contain (i.e., system specifications)?

- How satisfied would you say that you are with this level of involvement?
- How does this compare with the situation two years ago?
 - What do you expect it to be two years from now?

	<u>Satisfaction With This Involvement*</u>	
	<u>Rating**</u>	<u>Key Users</u>
Now	_____	_____
Two years ago	_____	_____
Two years in future	_____	_____

*1 = Low; 3 = Medium; 5 = High

**1 = All by EDP; 2 = Most by EDP; 3 = Shared between EDP and users; 4 = Most by users; 5 = All by users

13. What is the level of your department's involvement in design reviews (for new development/major enhancements)?

Satisfaction With This Level*

	<u>Rating**</u>	<u>Key Users</u>
Now	_____	_____
Two years ago	_____	_____
Two years from now	_____	_____

*1 = Low; 3 = Medium; 5 = High

**1 = All by EDP; 2 = Most by EDP; 3 = Shared between EDP and users;
4 = Most by users; 5 = All by users.

- Describe what changes are planned.

14a. Suppose a user department requests system development work (either a new system or an enhancement). About how long would it be before (a) a feasibility study began and (b) the actual system development work began? Assume that there are four levels of ultimate effort involved:

- Several man-days, or
- Several man-months, or
- Several man-years, or
- Many man-years.

About how long would it be before a feasibility study began (if any) and the actual systems development work began?

Level of Effort	Months Before Work Begins On		Comments
	Feasibility Study	Systems Development	
Several Man-Days			
Several Man-Months			
Several Man-Years			
Many Man-Years			

14b. How satisfied are you with these time periods? Why?

	Satisfaction*	Reason
Key Users		

- What changes are planned?

15a. Does your department use (or have you) used a chargeback system where your department is charged by corporate EDP for data processing services?

() YES () NO

15b. If yes:

- How long have you used it?

- What kind of units are used to establish charges?

- Resource usage units (e.g., CPU cycles, disk tracks, etc.)

- Output units (e.g., per report, per transaction, etc.)

- How are development and maintenance costs charged?

- Is the chargeback system primarily administrative or financial in nature; that is:

- If a department overruns does it need administrative approval as opposed to a change in its budget? (Describe)

- Can budgeted EDP dollars be spent on either internal or external data processing services as the user department sees fit? (Describe)

- Can unspent chargeback dollars be used for non-data processing expenditures (or be switched around as easily as any other budget categories)? (Describe)

- In general, how well has your chargeback system worked and why?

	Satisfaction*	Reason
From the standpoint of:		
The department(s) concerned with the key system?		

*1 = Low; 3 = Medium; 5 = High.

- What changes do you plan to make to the chargeback system and why?

16a. Is user department satisfaction with corporate data processing service measured in any way?

() YES () NO

16b. If yes:

- How long has it been going on?

- What is the process?

- What changes have been made as a result?

- What changes do you think should be made to the process? Why?

16c. If no:

- Do you think a regular process of measuring user satisfaction would be useful? Why?

17a. Does your company use or is it considering using so-called "user contracts" between the EDP and users?

() YES () NO (Go to 17d)

17b. If yes:

- Who took the initiative and why?

- Please describe what is/will be included?

17c. If now used:

- How long have they been used?

- What is the level of satisfaction (and why) among the parties involved?

Party	Satisfaction*	Reason
EDP Department		
User Departments Generally		
Departments Using Most Important System		

*1 = Low; 3 = Medium; 5 = High

- What changes do you have planned and why?

17d. If no:

- Do you think it would be useful? Why?

18. Service satisfaction can be viewed as having two components.

- Objective, quantifiable factors, such as response time, system reliability, etc.
- Qualitative factors, such as attitudes, personalities, etc.

In your organization how important would you say that each of these factors is in determining satisfaction with EDP levels of service? How do you expect the importance to change in the future?

	Importance*	Change Expected
Quantitative		
Qualitative		

*1 = Low; 3 = Medium; 5 = High

19. In what other ways, not touched on here, do you think that the kind of data processing service you receive from corporate EDP could be improved?

APPENDIX C: DETAILED RESPONDENT PROFILES

EXHIBIT C-1

REVENUE SIZE OF COMPANIES INTERVIEWED

SIZE (REVENUES)	NUMBER OF COMPANIES INTERVIEWED
\$2.6 billion & over	4
\$2.1 - 2.5 billion	2
\$1.1 - 2.0 billion	8
\$501 million - 1 billion	3
\$201 - 500 million	3
\$101 - 200 million	3
Under \$100 million	5
TOTAL	28

EXHIBIT C-2

EMPLOYEE SIZE OF COMPANIES INTERVIEWED

SIZE (NUMBER OF EMPLOYEES)	NUMBER OF COMPANIES INTERVIEWED
Over 30,000	3
20,000 - 30,000	4
10,000 - 19,999	4
6,000 - 9,999	5
1,000 - 5,999	9
Under 1,000	3
TOTAL	28

EXHIBIT C-3

NUMBER AND TYPES OF COMPANIES INTERVIEWED

TYPE OF COMPANY	NUMBER OF COMPANIES INTERVIEWED
Discrete Manufacturing	7
Process Manufacturing	8
Insurance	5
Banking and Finance	2
Transportation	2
Utilities	2
Services	2
TOTAL	28



APPENDIX D: SAMPLE USER SATISFACTION SURVEY FORM

APPENDIX D

USER SATISFACTION SURVEY

The Information Systems department is seeking your help in evaluating the quality of service and support it is providing. Your answers to this questionnaire will assist in determining opportunities for improving our value to you. Our objective is to provide the information you need when you need it, and at the least possible cost to you.

What is your opinion of the service you received in each of the following areas during the past six months? Please indicate your answers to each question by circling the appropriate number. "5" indicates the highest level of satisfaction, "3" is average, and "1" is dissatisfaction. If not applicable, please circle "0".

If you have any questions about the survey please call _____
at _____.

I. DEVELOPMENT, ENHANCEMENT, MAINTENANCE

- | | | | | | | | |
|--|-------------------|---|---|---|---|---|---|
| 1a. Did the systems team begin work on your application in a timely manner? | * New Development | 0 | 1 | 2 | 3 | 4 | 5 |
| | Enhancement | 0 | 1 | 2 | 3 | 4 | 5 |
| 1b. Which application(s) _____ | Maintenance | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. Were your applications delivered on schedule? | New Development | 0 | 1 | 2 | 3 | 4 | 5 |
| | Enhancement | 0 | 1 | 2 | 3 | 4 | 5 |
| | Maintenance | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. Were your applications delivered on or under budget, or were you prepared well in advance for any overruns? | | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. Was the systems team willing to accept your influence in the design of your application. | | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. Did the systems team understand and incorporate your business needs into the application design? | | 0 | 1 | 2 | 3 | 4 | 5 |
| 6. Could the systems team explain technical matters in terms you can understand? | | 0 | 1 | 2 | 3 | 4 | 5 |
| 7. How well did the systems team support and balance your requirements against technical limitations? | | 0 | 1 | 2 | 3 | 4 | 5 |

* Definitions: New Development = brand new or replacement system.
Enhancement = voluntary improvement providing additional capabilities.
Maintenance = mandatory change, or repair of errors.

APPENDIX D (Cont.)

USER SATISFACTION SURVEY

8. Did the systems team seek to design and build flexible applications in anticipation of future needs, e.g., volume increases? 0 1 2 3 4 5

9. How well did the systems team integrate the application within the total system? 0 1 2 3 4 5

10. Did the systems team deliver agreed-upon system capability (output, controls, performance)? 0 1 2 3 4 5

11. What are the shortfalls? _____
0 1 2 3 4 5

12. Documentation (availability, currentness, ease of use). New Development 0 1 2 3 4 5
After changes 0 1 2 3 4 5

13. Ability to operate without further dependence on the systems team. 0 1 2 3 4 5

14. What is your level of satisfaction with hand-over and initial implementation period of a new or changed application? 0 1 2 3 4 5

15. How well-tested was the system? 0 1 2 3 4 5

16. Were you adequately assisted in developing the cost benefit calculation? 0 1 2 3 4 5

17. Are you satisfied with the priority given to new applications? 0 1 2 3 4 5

18. How do you rate the return-on-investment for the cost of: New Development 0 1 2 3 4 5
Enhancement 0 1 2 3 4 5
Maintenance 0 1 2 3 4 5

19. Please rank in order of importance to you the services listed in part I.
 Most important - question number _____.
 Second - question number _____.
 Third - question number _____.
 Fourth - question number _____.
 Fifth - question number _____.

20. Any other comments on the applications software aspects? _____

APPENDIX D (Cont.)

USER SATISFACTION SURVEY

II. DATA CENTER ACTIVITY

A. USE OF TERMINAL

- 21a. Access to the system when you want to use it. 0 1 2 3 4 5
- 21b. What is your ☐measure ☐estimate of availability? _____%
- 22a. Terminal response time. 0 1 2 3 4 5
- 22b. What is your ☐measure ☐estimate of response time?
Range: _____ to _____ seconds, Average: _____ seconds.
23. Down-time warning procedure. 0 1 2 3 4 5
24. Screen-formating procedure. 0 1 2 3 4 5
25. Ease of use of input/output devices. 0 1 2 3 4 5
26. Where is your terminal located? _____
_____ (location/building)
- 27a. How many hours/week do you use your terminal? _____ hours/
week.
- 27b. During what time is your main use? _____:_____ am./pm.

B. BATCH PROCESSING

28. Ability of Data Center to meet delivery schedule for output. 0 1 2 3 4 5
29. Correctness of data (accuracy in processing, adequacy of
batch controls, other data center control procedures). 0 1 2 3 4 5
30. Level of detail, summarization and format of data. 0 1 2 3 4 5
31. Privacy controls (individual or Corporate). 0 1 2 3 4 5
32. Documentation (availability, currentness, ease of use). 0 1 2 3 4 5
33. Resolution of problems (initial response, on-going communi-
cation, long-standing unresolved problems). 0 1 2 3 4 5
34. Contingency planning (back-up files, alternate access during
or after down-time). 0 1 2 3 4 5

APPENDIX D (Cont.)

USER SATISFACTION SURVEY

35. User training (equipment, Data Center procedures) 0 1 2 3 4 5
36. Value received for the cost of the operation service. 0 1 2 3 4 5
37. Current charge-back "formula" 0 1 2 3 4 5
- 38a. Overall quality of service from your Data Center. 0 1 2 3 4 5
- 38b. Which Data Center do you use? _____ 0 1 2 3 4 5

39. Please rank in order of importance to you the services listed in part II.

Most important - question number _____.

Second - question number _____.

Third - question number _____.

Fourth - question number _____.

Fifth - question number _____.

III. OPTIONAL QUESTIONS ABOUT YOURSELF

40. Your Name: _____ Title: _____
Department: _____ Phone: () _____

41. How many years MIS and/or user experience overall do you have?

Less than 1 year ☐ 1 year to 3 years ☐ More than 3 years ☐

42. Please check this box if you are a Manager mainly involved in planning ☐

43. Please check this box if you are a Manager or Supervisor mainly involved in day-to-day control ☐

Comments: _____

Please return before ____ / ____ / ____ to: _____.

If you have any questions about the survey please call () _____.

INDEX

INDEX

	<u>Page</u>
Age of key systems	13
Chargeback	49,51,65,66,67
Conclusions	65
Development work requests	28
Development work request process	29,30
Enhancements to key systems	12,14
Measuring user satisfaction	53,56,58,82
Methodology	10,85,109
Misperceptions of user satisfaction levels	26,34,40,52,61,63
Personnel movement between IS and user	45-49
Program development request checklist	81
Rating of general level of service	20
Rating of levels of service in specific areas by IS	22
Recommendations	67
Respondent profiles	127,128,129
Response time	35
checklist	80
needs	43
Steps in developing user service agreements	82,83
Terminal downtime checklist	79
Terminal uptime	6,28,31,32,34
User involvement in the system development process	24
User satisfaction survey	66,130
User service agreements	68-84

